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CULTIVATED FERNS;

OR,

A CATALOGUE OF

EXOTIC AND INDIGENOUS FERNS

CULTIVATED IN BRITISH GARDENS,

WITH

Characters of the Genera, Principal Synonyms, etc.

By JOHN SMITH, A.L.S.,
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AND CURATOR OF THE ROYAL BOTANIC GARDENS OF KEW.

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INTRODUCTORY REMARKS.

Ferns having of late years, by their elegance and beauty, become great favourites in our gardens and conservatories, numerous works calculated to facilitate their study have issued from the press, and advertisements of new ones constantly meet our eye.* Gratifying as this fact undoubtedly is, as proving the popular interest the subject has acquired, it has however been attended with the great disadvantage of having led to a maze of conflicting views and an almost endless mass of synonyms; for, as the leading authors differ in their systems of classification and nomenclature, few Ferns now possess less than two names, many have more, some even exceeding twenty. Such being the case, amateurs and cultivators complain—and surely with good reason—of the difficulty experienced in obtaining correct names for their collections. To assist in remedying this complaint, I have been induced to draw up a Catalogue of the Ferns cultivated in this country, the greater number of which are now in the Royal Botanic Gardens at Kew; but as new introductions are frequent, a few have come to my knowledge since the first sheets of the present Work were printed, and are consequently not in this enumeration. I have also omitted several names that have recently appeared in nurserymen's catalogues, not having sufficient evidence before me to warrant the adoption of them either as distinct species or as synonyms. The small size of the book does not permit me to give descriptions of the species; but, in order to assist in referring species to their respective genera, I have given the general characters of each genus, and also a few of the principal synonyms, with references to one or more published figures, and the native country of each species.

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* Since the above was sent to the press, a new work by Sir W. J. Hooker, entitled 'Filices Exoticæ; or, Figures and Descriptions of Exotic Ferns, particularly of such as are most deserving of Cultivation,' has been announced. This important and much-desired work is to be published in monthly parts (commencing in September), each part containing eight coloured plates.

In defining and classifying the genera, I have, with some modifications, followed the system proposed by me in 'Hooker's Journal of Botany,' 1841 and 1842. Since then further observations have led me to regard the different modes of growth (*vernation*) and general habit as affording important auxiliary characters for assisting in defining affinities. More natural alliances can be formed by these means than by adhering strictly to technical characters derived solely from the organs of fructification, which hitherto, as with flowering plants, have afforded the principal data for characterizing genera. Even with flowering-plants however, modern botanists do not entirely exclude habit from generic descriptions. An eminent botanist remarks, that "in a Natural Order so extremely simple as the *Liliaceæ* the differences between the genera are necessarily very slight, and here we find that such groups as *Scilla, Ornithogalum, Allium, Gagea, Urginea,* and many more, are distinguished as much by habit as by an absolute variation of structure."* This view being applicable to many families of plants, induces me to be more confident that habit is of importance in defining the natural affinities of Ferns. In following up my observations, I find that Ferns present two distinct modes of growth: the first, which I have named *Eremobrya,*† is characterized by the fronds being produced singly from nodes on the side of a fleshy, surculose rhizome, which has its apex of extension always in advance of the nascent frond; the latter, after having arrived at maturity, separates from the node by a special articulation. In the following pages *Eremobrya* is characteristic of the genera numbered from one to twenty, nearly the whole of which agree with the technical character of the genus *Polypodium,* as originally characterized by Linnæus and other early authors. The second and more general mode of growth, named *Desmobrya,*‡ differs from the preceding by the fronds being developed from the apex of the progressing axis either in a single alternate or a continuous fasciculate series, their united and permanent bases forming an erect or decumbent cormiform caudex, or a creeping or scandent sarmentum. This mode of growth is common to the majority of Ferns, and is readily distinguished from *Eremobrya* by the fronds not being articulated with the axis.

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* Lindley, in 'Botanical Register.'

† Seemann's 'Botany of the Voyage of H.M.S. Herald,' p. 226.

‡ *Ibid.*

On viewing the various modifications of these two modes of growth in combination with the character of the fructification and vascular structure of the frond, we obtain data to enable us to arrange the naturally allied forms or species in groups or genera (if they may be so called).

With regard to the characters that define the limits of specific forms, much uncertainty prevails amongst authors. This is owing to several causes, such as many species being normally heteromorphous, presenting at the same time different forms, which again vary at another period of growth; and in many instances authors have described the different states as distinct species; and in some cases portions of the same species or individual plant have even been placed under separate genera. It also frequently happens that two or more presumed species present so many intermediate gradations of form, that only the most extreme states appear sufficiently distinct to warrant their adoption as species, the numerous intermediate forms seeming to set specific distinctions at defiance. It therefore becomes a question what is the limit of form or of structure that constitutes a species. Generally understood, a species is an organized structure endowed with an essence or quality peculiar to itself, and possessing the power of multiplying and transmitting its type to new generations without change, *ad infinitum.* Admitting this definition as correct, it seems to be beyond human power to ascertain whether the serial gradations of form are genuine descendants of original creations, or only deviations from one original, brought into existence during the lapse of ages by the different climatic and local influences they have been subjected to. It is well known that phænogamous plants assume different forms and aspects, effected by the agency of man and by various natural causes; the difference from the original types being often so great, that if evidence of the change were not on record, the botanist of the present day would be justified in describing them as *distinct originally created species.* With Ferns we possess but little evidence of new forms having come into existence, the chief examples being found in several intermediate states in the genus *Gymnogramme,* which of late years have made their appearance in gardens, and seem to have as good right to be regarded as species as the original typical forms first known. If such changes do actually take place, and we are to deduce from them that races of intermediate forms originate in the progress of time and through the causes above alluded to, then great difficulty must attend any attempt to define species of Ferns. This is especially applicable in determining species from extensive suites of herbarium specimens. The number of species will be diminished or increased in accordance with the botanist's idea of specific differences: he will either amalgamate a number of allied forms under one specific name, or separate more or less of them as distinct species. On inspecting living examples of allied forms, the latter view seems to claim adoption; for although words often fail to convey the differences between individuals, still the eye readily detects them, and knowing that each maintains its own peculiar phase or habit from year to year, the scientific observer considers himself justified in naming them distinct species.

These observations briefly explain a few of the causes of the plurality of names possessed by most Ferns, also the difficulty of arriving at satisfactory conclusions respecting their generic and specific distinctions, affording little hope of an early unanimity amongst authors, and fully justifying every one who has studied Pteridology in giving his own views.

J. SMITH.

Royal Botanic Gardens,
Kew, June 1857.

DEFINITIONS.

FERNS are flowerless plants, consisting of leafy fronds, spirally unfolding, and traversed by veins, which, from definite parts on the under surface of the frond (rarely on both), produce unilocular or rarely multilocular cases (*sporangia*), containing reproductive *spores*.

The *fronds* vary in form, size, and texture, and are produced either from the sides of a special *rhizome*, and articulated with it (*Eremobrya*), or from the apex of a sarmentose or cormiform, often arboreous caudex, with which their bases are adherent (*Desmobrya*). They are furnished with a footstalk (*stipes*), or are leafy to the base (*sessile*). They vary from less than an inch to fifteen or twenty feet in length, and from linear-filiform to broad-elliptical or deltoid; they are simple entire, or once or more times pinnate, or decompound branched (*pinnate, bi-tri-pinnate*, etc.); the ultimate pinnæ or segments are analogous in structure to a simple frond, being entire, sinuose, lobed, equally or unequally pinnatifid, or variously laciniated, sessile or petiolated, and either articulated or adherent with the rachis. In texture they vary from thin, membranaceous, and pellucid, to thick, coriaceous, opaque, and rigid, and are either smooth or furnished with different kinds of glands, hairs, or deciduous membranous scales. In some the stipes and primary branches (*rachis*) are rough (*muricate*), or bear hard spines (*aculeate*). The fertile frond, or a portion of it, is frequently contracted, and differs entirely in aspect from the sterile.

The *veins* (*venation*) are produced from both sides of a central midrib (*costa*), or from one side of an excentric or unilateral midrib, or from the base of the frond or segment, the midrib being obsolete. The first or *primary veins* form a more or less acute angle with the costa, having an oblique, upward direction towards the margin. They are either *simple*, or once or more times dichotomously branched (*forked*), or they are *costæform*, and produce branches on each side (*pinnate*), the branches (*venules*) being simple or again forked, and terminate at or within the margin (*free*), or the apices of the proximate venules of each fascicle unite in an angular or arcuate manner, forming areoles (*anastomosing*). From the angular junctions or sides of the venules, one or more outwardly directed tertiary veins (*veinlets*) are produced, and are either free and terminate within the areoles, or anastomose in the angle or sides of the next superior pair of venules; or the venules are unequal, and irregularly anastomose, with variously directed, free or conniving veinlets, terminating in the areoles (*compound anastomosing*). When the primary veins are obsolete or evanescent, the venules and veinlets are generally uniform, and all united (*reticulated*).

All the above-described varieties of venation are more or less distinct, plane, or elevated (*external*), or immersed in the substance of the frond, and then often indistinct (*internal*).

The *sporangiferous receptacle* is a thickened point or lengthened portion of the ultimate venules or veinlets, and is either formed on their apex (*terminal*), or between their apex and base (*medial*), or on the point of forking (*axillary*), or on the angular crossings or points of confluence of two or many venules or veinlets (*compital*), or the whole or a portion of the disc of the frond is changed in texture, and closely occupied by the sporangia (*amorphous*). It is generally superficial, sometimes immersed in the substance of the frond, or considerably elevated, and then globose or columnar.

The *sporangia* are transparent, globose, oval, or pyriform unilocular cases, each girded by a more or less complete, elastic, articulated ring; or destitute of a ring, then sometimes by combination oblong, or linear, opaque, and multilocular, usually pedicellate, rarely sessile, produced in crowded masses (*sori*) on each receptacle; rarely solitary or few, sometimes pilose, and a number often abortive and deformed.

The *sori* are collections of sporangia, and have the same form, position, and direction, as the receptacles; therefore *round*, *elongated*, or *amorphous*, and seated on or close to the margin (of the frond or segment) (*marginal*), or between the margin and midrib (*intramarginal*), or close to the midrib (*costal*); when elongated they are either oblong or linear, constituting a continuous or interrupted line, which forms more or less of an angle with the midrib (*oblique*), or runs parallel with the midrib or margin (*transverse*). They are either naked, or each sorus is furnished with a membranaceous covering of various forms, called *indusium*, which rises from the receptacle.

The *indusium* is a plane, or vaulted, or cup-shaped membrane, produced from the receptacle of each sorus (*special*), and is generally deciduous, or it becomes replicate. It is either produced from the centre of the receptacle (*central*), or on one side (*lateral*), or its base is attached all round the base or margin of the receptacle (*calyciform*). When central it is usually *orbicular*, with its margin depressed, and free all round, or sometimes it is inflated. When lateral it is either *reniform*, *oval*, or *oblong*, and attached by a point or depressed sinus of its side; or *linear*, and attached its whole length on the side of an elongated receptacle;

the other margin free. When calyciform, it is first entire and globose, at length opening with an entire or laciniated margin, forming a cup, which contains the sporangia. Often the margin or lobules of the frond is changed in texture, and forms an accessory indusium, with which the interior, lateral, attached, special indusium more or less connives, and by their union they form a vertical or reflexed, continuous or urceolate, calyciform or bilabiate, marginal cyst, which contains the sporangia, and is open exteriorly. Sometimes the whole of the sori of each segment are included within a universal indusium, which is formed by the revolute margin of fertile contracted fronds.

w name: Asplenium bifidum on p.82

A
CATALOGUE OF FERNS.

ORDER I. **POLYPODIACEÆ.**

Sporangia globose or oval, unilocular, pedicellate or sessile, furnished with a vertical or transverse, rarely oblique, articulated ring.

* *Sporangia opening transversely. Ring vertical or oblique.*

TRIBE I. **POLYPODIEÆ**, *J. Sm.*

Sori round, oblong, or linear, destitute of a special indusium.

DIV. I. **Eremobrya,** *J. Sm.*

Fronds in vernation lateral, solitary, attached to the axis (rhizome) by a special articulation.

1. **POLYPODIUM,** *J. Sm.; Linn. in part.*

Fronds pinnatifid or bi-tripinnatifid. *Veins* forking, free, the lower exterior venule bearing the sporangia on its apex. *Sori* round or oblong, transversely uniserial.

1. **P. pectinatum,** *Linn.; Plum. Fil. t.* 83.—Tropical America.
2. **P. Paradiseæ,** *Lang. et Fisch. Ic. Fil. t.* 11.—Brazil.
3. **P. Schkuhrii,** *Radd. Fil. Bras. t.* 27.—Brazil.

4. **P. vulgare,** *Linn.; Eng. Bot. t.* 1149; *Lindl. and Moore's Brit. Ferns, t.* 1. *f. A, B, C, and D.—Var. I.* acutum, *f. E. Var. II.* bifidum, *f. F. Var. III.* semilacerum, *t.* 2. *f. A. Var. IV.* serratum, *f. B. Var. V.* Cambricum, *t.* 3. *f. A. Var. VI.* crenatum, *f. B.*—Northern Temperate Zone.
5. **P. Karwinskianum,** *A. Braun.*—Mexico.
6. **P. plebejum,** *Schlecht.*—Mexico.
7. **P. appendiculatum,** *Linden.*—Mexico.
8. **P. fraternum,** *Schlecht.* P. Henchmanii, *J. Sm.*—Mexico.
9. **P. subpetiolatum,** *Hook. Ic. Pl. t.* 391–2.—Mexico.

2. LEPICYSTIS, *J. Sm.*

(Marginaria, *Presl.* Goniophlebium § Lepicystis, *J. Sm. Gen. Fil.* Polypodii sp., *Auct.*)

Fronds pinnatifid, densely squamose. *Veins* anastomosing, the lower exterior venule of each fascicle free, bearing sporangia on its apex within the costal areoles. *Sori* round, protruding through the dense squamæ.

1. **L. incana,** *J. Sm.* Polypodium incanum, *Sw.* P. velatum, *Schk. Fil. t.* 11, *B.*—Tropical America, and Southern United States.

8. **L. sepulta,** *J. Sm.* Polypodium sepultum, *Kaulf.* P. rufulum, *Presl.* P. hirsutissimum, *Radd. Fil. Bras. t.* 26. Acrostichum lepidopteris, *Lang. et Fisch. Ic. Fil. t.* 2.—Tropical America.

3. **L. squamata,** *J. Sm.* Polypodium squamatum, *Linn.; Plum. Fil. t.* 79.—West Indies.

3. GONIOPHLEBIUM, *Presl; J. Sm.*

(Marginariæ sp., *Presl.* Polypodii sp., *Auct.*)

Fronds pinnatifid or pinnate, rarely simple. *Veins* anastomosing, with a free excurrent venule in each areole, bearing sporangia on its apex. *Sori* round or oblong, transversely 1–6-serial.

* *Sori naked.*

1. **G. loriceum,** *J. Sm.* Polypodium loriceum, *Linn.; Plum. Fil. t.* 78. P. latipes, *Lang. et Fisch. Ic. Fil. t.* 10.—Tropical America.
2. **G. Catharinæ,** *J. Sm.* Polypodium Catharinæ, *Lang. et Fisch. Ic. Fil. t.* 9.—Brazil.
3. **G. glaucum,** *J. Sm.* Polypodium glaucum, *Radd. Fil. Bras. t.* 29. *f.* 1.—Brazil.
4. **G. harpeodes,** *J. Sm.* Polypodium harpeodes, *Link.*—Brazil.
5. **G. colpodes,** *J. Sm.* Polypodium colpodes, *Kunze.*—Venezuela.
6. **G. lætum,** *J. Sm.* Polypodium lætum, *Radd. Fil. Bras. t.* 28.—Brazil.
7. **G. vacillans,** *J. Sm.* Polypodium vacillans, *Link.*—Brazil.
8. **G. fraxinifolium,** *J. Sm.* Polypodium fraxinifolium, *Jacq. Ic. Rar. t.* 639. P. longifolium, *Presl.*—Tropical America.
9. **G. distans,** *J. Sm.* Polypodium distans, *Radd. Fil. Bras. t.* 31. P. polystichum, *Link.* P. deflexum, *Lodd.*—Tropical America.
10. **G. menisciifolium,** *J. Sm.* Polypodium menisciifolium, *Lang. et Fisch. Ic. Fil. t.* 12. P. albopunctatum, *Radd. Fil. Bras. t.* 30.—Brazil.
11. **G. dissimile,** *J. Sm.* Polypodium dissimile, *Linn.*, *non Schk.*—Jamaica.
12. **G. inæquale,** *J. Sm.* Phlebodium inæquale, *Moore.*—Guatemala.

** *Sori squamiferous* (Schellolepis, *J. Sm.*).

13. **G. cuspidatum,** *Presl.* Polypodium cuspidatum, *Bl.*, *non Don.* P. grandidens, *Kunze; Metten. Fil. Hort. Leipsic. t.* 23. P. colpothrix, *Kunze.* Goniophlebium argutum, *Cat. Hort. Kew.*, *non* Polypodium argutum, *Wall.*—Java.
14. **G. subauriculatum,** *Presl.* Polypodium subauriculatum, *Bl. Fl. Jav.* 6. *t.* 83. P. Reinwardtii, *Kunze.* P. metamorphum, *Kunze.* Goniophlebium Pleopeltis, *Fée.*—Malay Archipelago.

15. **G. verrucosum,** *J. Sm.* Polypodium verrucosum, *Wall.; Hook. Gen. Fil. t.* 10 *B.*—Malacca.

4. PHLEBODIUM, *R. Br.; J. Sm.*

(Chrysopteris, *Link.* Polypodii sp., *Auct.*)

Fronds large, pinnatifid or sub-pinnate, membranaceous. *Veins* arcuately or angularly anastomosing, with 2–3 excurrent venules terminating in the areoles, and bearing the sporangia on their combined apices. *Sori* round, transversely 1–6-serial, naked.

1. **P. aureum,** *R. Br.* Polypodium aureum, *Linn.; Plum. Fil. t.* 76; *Schk. Fil. t.* 12.—Tropical America.
2. **P. sporodocarpum,** *J. Sm.* Polypodium sporodocarpum, *Willd.* P. glaucum, *Hort.*—Mexico.
3. **P. areolatum,** *J. Sm.* Polypodium areolatum, *Willd.*—Venezuela.
4. **P. pulvinatum,** *J. Sm.* Polypodium pulvinatum, *Link.*—Brazil.
5. **P. dictyocallis,** *J. Sm.* Chrysopteris dictyocallis, *Fée.* Phlebodium multiseriale, *T. Moore, Gard. Chron.* 1855.—Tropical America.

5. LOPHOLEPIS, *J. Sm.*

(Goniophlebium § Lopholepis, *J. Sm. Gen. Fil.* Marginariæ sp., *Presl.* Craspedariæ sp., *Link; Fée.*)

Fronds simple, entire, 1–4 inches high, the fertile contracted, linear. *Veins* anastomosing, with a free venule terminating in the costal areoles, bearing the sporangia on its apex. *Sori* round, each furnished with a dense tuft of elongated scales.

1. **L. piloselloides,** *J. Sm.; Hook. Gen. Fil. t.* 51. Polypodium piloselloides, *Linn.; Plum. Fil. t.* 118.—West Indies.

6. PLEOPELTIS, *Humb.; J. Sm.*

(Phlebodium § Pleopeltis, *J. Sm. Gen. Fil.* Pleopeltidis sp., *Presl.* Drynariæ sp., *Fée.* Polypodii sp., *Auct.*)

Fronds simple, sinuose, or pinnatifid, 4–12 inches high, opaque, squamiferous. *Veins* arcuately anastomosing. *Sporangia* produced on the confluent apices of two or more excurrent veinlets, terminating in the medial areoles. *Sori* punctiform, oblong, or (by confluence) linear, tranversely uniserial, furnished with indusiform peltate scales.

1. **P. percussa,** *Presl; Hook. et Grev. Ic. Fil. t.* 67. Polypodium cuspidatum, *Presl, Reliq. Hænk. t.* 1. *f.* 3. Polypodium avenium, *Desv.*—Tropical America.
2. **P. stigmaticum,** *Presl.* Polypodium stigmaticum, *Presl, Reliq. Hænk. t.* 3. *f.* 2. Polypodium Hænkeanum, *Spr.* —Tropical America.
3. **P. lanceolata,** *Presl.* Polypodium lanceolatum, *Linn.; Plum. Fil. t.* 137. Polypodium macrocarpum, *Willd.* Pleopeltis macrocarpa, *Kaulf.* Pleopeltis lepidota, *Presl.* Pleopeltis Helenæ, *Presl.*—Tropical America, St. Helena, South Africa, and Bourbon.
4. **P. elongata,** *J. Sm.* Grammitis elongata, *Sw.* Synammia elongata, *Presl.* Grammitis lanceolata, *Schk. Fil. t.* 7.—Tropical America.

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7. ANAPELTIS, *J. Sm.*

(Phlebodium § Anapeltis, *J. Sm. En. Fil. Hort. Kew.* (1846). Pleopeltidis sp., *Presl.* Polypodii sp., *Auct.* Craspedariæ sp., *Link.*)

Fronds simple, 1–6 inches long, the fertile usually contracted and linear, smooth, generally opaque. *Veins* arcuately or angularly anastomosing. *Sporangia* produced on the confluent apices of two or more excurrent veinlets terminating in the medial areoles. *Sori* punctiform or ovate, transversely uniserial, naked.

1. **A. vacciniifolia,** *J. Sm.* Polypodium vacciniifolium, *Lang. et Fisch. Ic. Fil. t.* 7; *Radd. Fil. Bras. t.* 23. *f.* 2. Polypodium buxifolium, *Hort.*—Brazil.
2. **A. serpens,** *J. Sm.* Polypodium serpens, *Sw.; Plum. Fil. t.* 121. Pleopeltis serpens, *Presl.*—West Indies.

3. **A. lycopodioides,** *J. Sm.* Polypodium lycopodioides, *Linn.; Plum. Fil. t.* 119. Pleopeltis lycopodioides, *Presl.*—West Indies.
4. **A. nitida,** *J. Sm. En. Fil. Hort. Kew.* (1846).—Honduras.
5. **A. venosa,** *J. Sm.* Phlebodium venosum, *Moore et Houlst.* —Tropical America.
6. **A. squamulosa,** *J. Sm.* Polypodium squamulosum, *Kaulf.* Pleopeltis squamulosa, *Presl.* Polypodium myrtifolium, *Lodd.*—Brazil.

8. DICTYMIA, *J. Sm.*

(Dictyopteridis sp., *Presl.* Polypodii sp., *R. Br.*)

Fronds contiguous, simple, linear, opaque, smooth. *Veins* reticulated, uniform, obscure. *Sporangiferous receptacles* compital. *Sori* oval, transversely uniserial, medial, naked.

1. **D. attenuata,** *J. Sm. En. Fil. Hort. Kew.* (1846). Polypodium attenuatum, *R. Br.* (*non Hook. Ic. Pl. t.* 409). Dictyopteris attenuata, *Presl* (*non Hook. Gen. Fil. t.* 71, *B.*). Drynaria Browniana, *Fée.*—Australia.

9. NIPHOPSIS, *J. Sm.*

(Niphoboli sp., *Hook. et Grev.; Spreng.* Pleopeltidis sp., *Presl.* Polypodii sp., *Sw.; Wall.*)

Fronds simple, linear-lanceolate, coriaceous, opaque, densely covered with stellate pubescence. *Veins* internal, obscure, compound anastomosing; primary veins indistinct. *Sporangiferous receptacles* compital. *Sori* oval, large, transverse uniserial.

1. **N. angustatus,** *J. Sm.* Polypodium angustatum, *Sw.; Schk. Fil. t.* 8. *c.* Pleopeltis angustata, *Presl.* Niphobolus sphærocephalus, *Hook. et Grev. Ic. Fil. t.* 94. Polypodium sphærocephalum, *Wall.* Phymatodes sphærocephalus, *Presl.* Niphobolus macrocarpus, *Hook. et Arn.*—Malay Archipelago.

10. **DRYMOGLOSSUM,** *Presl; J. Sm.*

(Pteridis sp., *Linn.* Notholænæ sp., *Kaulf.* Pteropsidis sp., *Desv.*)

Fronds simple, 1–4 inches long, opaque, the fertile always contracted, linear. *Veins* anastomosing, with free veinlets terminating in the areoles. *Sporangiferous receptacles* compital and confluent, forming a linear, continuous, longitudinal, medial sorus, furnished with stellate squamæ.

1. **D. piloselloides,** *Presl.* Pteris piloselloides, *Linn.; Sw. Syn. Fil. t.* 2. *f.* 3; *Schk. Fil. t.* 87. Acrostichum heterophyllum, *Linn.* Tænitis piloselloides, *R. Br.*—East Indies.

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11. **NEVRODIUM,** *Fée.*

(Drymoglossi sp., *J. Sm. Gen. Fil.* Tænitidis, *Sw.*)

Fronds contiguous, simple, lanceolate, 6–12 inches long, opaque. *Veins* anastomosing, with free veinlets terminating in the areoles. *Sporangiferous receptacles* compital and confluent, forming a linear, continuous, marginal sorus, occupying the upper portion of the frond, which is somewhat contracted.

1. **N. lanceolatum,** *Fée, Gen. Fil. t.* 8, *c.* Pteris lanceolata, *Linn.; Plum. Fil. t.* 132. Tænitis lanceolata, *Kaulf.*—West Indies.

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12. **HYMENOLEPIS,** *Kaulf.*

(Gymnopteridis sp., *Presl.* Macroplethi sp., *Presl.* Acrostichi sp., *Linn.*)

Fronds linear-lanceolate, smooth, more or less of the upper portion abruptly contracted and revolute, forming a fertile linear spike. *Veins* internal, compound anastomosing; primary veins obsolete. *Sporangiferous receptacles* longitudinally confluent, forming a linear sorus, furnished with numerous suborbicular hyaline scales.

1. **H. spicata,** *Presl.* Acrostichum spicatum, *Linn.; Sm. ic.*

ined. t. 49. Lomaria spicata, *Willd.* Gymnopteris spicata, *Presl; J. Sm. Gen. Fil.* Hymenolepis ophioglossoides, *Kaulf.; Kunze, Fil. t.* 47. *f.* 1. Hymenolepis revoluta, *Bl.; Kunze, Fil. t.* 47. *f.* 2.—Malayan Archipelago.

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13. LEPTOCHILUS, *Kaulf.*

(Gymnopteridis sp., *Presl.* Dendroglossi sp., *Presl.* Anapausiæ sp., *Presl.* Acrostichi sp., *Auct.*)

Sterile fronds simple, lobed or pinnatifid, smooth. *Veins* internal, compound anastomosing; primary veins evident, straight or flexuose. *Fertile fronds* contracted, linear-rachiform, margin involute, indusiform. *Sporangiferous receptacles* longitudinally confluent, forming a compound, linear, naked sorus.

1. **L. decurrens,** *Bl.; Fée, Mem. Acrost. t.* 48. *f.* 1. Anapausia decurrens, *Presl.*—Ceylon, and Malayan Archipelago.

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14. PHYMATODES, *Presl; J. Sm.*

(Drynaria § Phymatodes vera, *J. Sm. Gen. Fil.* Drynariæ sp., *Fée.* Chrysopteridis sp., *Link.* Polypodii sp., *Auct.*)

Fronds simple, pinnatifid or pinnate, smooth, coriaceous or membranous, segments adherent with the rachis. *Veins* compound anastomosing, internal, obscure or evident; primary veins generally undefined or evanescent. *Sporangiferous receptacles* compital, generally deeply immersed. *Sori* round or oval, large, transversely uniserial or irregular, naked or furnished with indusiform scales.

§ 1. LEPISORUS, J. Sm.—*Sori squamiferous.*

* *Fronds simple.*

1. **P. nuda,** *J. Sm.* Pleopeltis nuda, *Hook. Exot. Fl. t.* 63 (*non Hook. Gen. Fil.*). Polypodium loriforme, *Wall.* Pleopeltis loriformis, *Presl.* Drynaria Fortunei, *T. Moore* (*non Link*). Polypodium leiopteris, *Kunze; Metten. Fil. Hort. Leip. t.* 25. *f.* 37.—East Indies.

2. **P. excavata,** *J. Sm.* Polypodium excavatum, *Bory in Willd.* Polypodium scolopendrinum, *D. Don.* Polypodium sesquipedalis, *Wall.* Polypodium phlebodes, *Kunze.* Pleopeltis nuda, *Hook. Gen. Fil. t.* 18 (*non Hook. Exot. Fl.*). —East Indies, Mauritius, and China.

3. **P. longifolia,** *J. Sm.* Grammitis (§ Paragramma) longifolia, *Blume.* Drynaria revoluta, *J. Sm. En. Fil. Phil.* Polypodium contiguum, *Wall.; Hook. Ic. Pl. t.* 987.—Malacca, Java, and Luzon.

§ 2. PHYMATODES VERA, J. Sm.—*Sori naked.*

* *Fronds simple or pinnatifid.*

4. **P. geminata,** *J. Sm.* Polypodium geminatum, *Schrad.; Metten.* Polypodium iteophyllum, *Link.*—Brazil.

5. **P. pustulata,** *Presl.* Polypodium pustulatum, *Forst.; Schk. Fil. t.* 10.—New Zealand.

6. **P. Billardieri,** *Presl.* Polypodium Billardieri, *R. Br.* Polypodium scandens, *Labill. Nov. Holl. t.* 240. Polypodium diversifolium, *Willd.* Polypodium lepidopodum, *Link.*—Tasmania and New Zealand.

7. **P. terminale,** *J. Sm.* Chrysopteris terminale, *Link.*—East Indies.

8. **P. peltidea,** *J. Sm.* Chrysopteris peltidea, *Link.* Polypodium phymatodes, *Schk. Fil. t.* 17.—East Indies.

9. **P. saccata,** *J. Sm.*—*Fronds* with long stipes, pinnatifid, 2½–3 feet long, smooth, sinus wide, obtuse, rounded; laciniæ (8–10 pairs) broad-lanceolate, acuminate, caudate, subfalcate, 8–10 inches long, 1¼ inch wide. *Sori* transversely uniserial. *Sporangiferous receptacles* deeply immersed, forming a row of elevated, truncate, papilliform tubercles on the upper side of the laciniæ.—Java.

10. **P. vulgaris,** *Presl.* Polypodium phymatodes, *Linn.; Jacq. Ic. t.* 637; *Schk. Fil. t.* 9.—Ceylon, South Africa, and Mauritius.

11. **P. longipes,** *J. Sm. En. Fil. Hort. Kew.* (1846). Chrysopteris longipes, *Link.* Polypodium phymatodes, *Schk. Fil. t.* 8, *a.*—Malayan Archipelago.

12. **P. longissima,** *J. Sm.* Polypodium longissimum, *Bl. Fl. Jav.* 6. *t.* 68. Polypodium melanoneuron, *Miq.* Drynaria rubida, *J. Sm. En. Fil. Phil.*—Malayan Archipelago.

** *Fronds pinnate.*

13. **P. cuspidata,** *J. Sm.* Polypodium cuspidatum, *D. Don.* Polypodium leiorhiza, *Wall.* Phymatodes leiorhiza, *Presl.* —East Indies.

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15. PLEURIDIUM, *Fée; J. Sm.*

(Phymatodes § Pleuridium, *Presl.* Polypodii sp., *Auct.*)

Fronds simple, pinnatifid or pinnate, coriaceous, firm, marginate; segments articulated with the rachis. *Veins* compound anastomosing; primary veins evident, elevated, costæform, straight. *Sporangiferous receptacles* compital. *Sori* round or oval, or by confluence oblong, longitudinally uniserial or obliquely 1–2-serial.

* *Fronds simple.*

† *Sori obliquely uniserial.*

1. **P. crassifolium,** *Fée.* Polypodium crassifolium, *Linn.; Plum. Fil. t.* 123. Anaxetum crassifolium, *Schott. Gen. Fil. t.* 1.—Tropical America.

** *Fronds pinnatifid or pinnate.*

† *Sori transversely uniserial.*

2. **P. palmatum,** *J. Sm.* Polypodium palmatum, *Bl. Fl. Jav. t.* 64.—Java.

3. **P. juglandifolium,** *J. Sm.* Polypodium juglandifolium, *D. Don, non Humb.* Polypodium capitellatum, *Wall.* Polypodium Wallichianum, *Spr.*—East Indies.

†† *Sori oblique, biserial.*

4. **P. venustum,** *J. Sm.* Polypodium venustum, *Wall.*—East Indies.

16. COLYSIS, *Presl; Fée.*

(Drynaria § Phyllitidis (in part), *J. Sm. En. Fil. Hort. Kew.* (1846). Polypodii sp., *Auct.*)

Fronds simple, generally membranous, flaccid. *Veins* compound anastomosing; primary veins costæform, elevated or internal, generally flexuose. *Sporangiferous receptacles* compital, superficial. *Sori* round, or by confluence oblong or linear, irregular or obliquely 1–2-serial.

1. **C. membranacea,** *J. Sm.* Polypodium membranaceum, *D. Don.* Polypodium hemionitidea, *Wall.* Colysis hemionitidea, *Presl; Fée.* Hemionitis plantaginea, *D. Don.* Polypodium grandifolium, *Wall.*—East Indies.

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17. MICROSORUM, *Link; Fée.*

(Drynaria § Phyllitidis (in part), *J. Sm. En. Fil. Phil.* Polypodii sp., *Auct.*)

Fronds simple, entire or irregularly sinuose, coriaceous, smooth. *Veins* compound anastomosing, internal; primary veins obscure. *Sporangiferous receptacles* compital, superficial. *Sori* round, small, numerous, irregular, sometimes subconfluent.

1. **M. irioides,** *Fée.* Polypodium irioides, *Poir.; Hook. et Grev. Ic. Fil. t.* 125. Polypodium polycephalum, *Wall.* Microsorum irregulare, *Link; Fée.* Microsorum sessile, *Fée.*—East Indies, Malayan Archipelago, Australia, and Trinidad.

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18. NIPHOBOLUS, *Kaulf.; J. Sm.*

Fronds simple, linear-lanceolate or oblong-elliptical, thick and fleshy or coriaceous, covered with sessile or stipitate, stellate pubescence; the fertile generally more or less contracted and longer than the sterile. *Veins* internal, obscure; primary veins undefined or evident and costæform, combined by straight or arcuate, transverse venules, which produce on their exterior or both sides two or more simple or forked, free veinlets bearing sporangia on or below their apices. *Sori* round or oval, protruding through the dense, stellate pubescence, subtransversely multi-serial between the primary veins, or irregular and confluent.

1. **N. rupestris,** *Spr.; Hook. et Grev. Ic. Fil. t.* 93. Polypodium rupestre, *R. Br.* Craspedaria rupestris, *Link.*—Australia.
2. **N. adnascens,** *Kaulf.* Polypodium adnascens, *Sw. Syn. Fil. t.* 2. *f.* 2. Niphobolus pertusus, *Spr.* Polypodium pertusum, *Roxb.; Hook. Exot. Fl. t.* 162.—East Indies.
3. **N. Lingua,** *Spr.; Kunze in Schk. Fil. Supp. t.* 63. Acrostichum Lingua, *Thunb. Fl. Jap. t.* 33; *Lang. et Fisch. t.* 5. Polypodium Lingua, *Sw.* Cyclophorus Lingua, *Desv.* Polycampium Lingua, *Presl.* Niphobolus Sinensis, *Hort.*—East Indies and China.
4. **N. Gardneri,** *J. Sm.* Polypodium Gardneri, *Metten. Gen. Polypodium, p.* 129. Niphobolus acrostichoides, *Cat. Fil. Hort. Kew., non* Polypodium (Niphobolus) acrostichoides, *Forst.*—Ceylon.

19. CAMPYLONEURON, *Presl.*

(Cyrtophlebium, *R. Br.; J. Sm. Gen. Fil.* Marginariæ sp., *Presl.* Polypodii sp., *Auct.*)

Fronds simple or pinnate, coriaceous, rigid, smooth. *Veins* subcompound anastomosing; primary veins costæform or undefined, elevated or internal and obscure, combined by arcuate or angularly anastomosing, transverse venules, which produce on their exterior side two or more excurrent, free veinlets, bearing sporangia on or below their apices. *Sori* round, naked, obliquely biserial or irregular.

* *Fronds simple.*

1. **C. ensifolium,** *J. Sm.* Polypodium ensifolium, *Willd.* Marginaria ensifolia, *Presl.*—Tropical America.
2. **C. angustifolium,** *Fée.* Polypodium augustifolium, *Sw.; Radd. Fil. Bras. t.* 24. *f.* 2. Marginaria angustifolia, *Presl.* Polypodium dimorphum, *Link.* Polypodium

leucorhizon, *Klt.* Polypodium amphostemum, *Kunze.*—Tropical America.

3. **C. rigidum,** *J. Sm.*—*Fronds* contiguous, stipitate, linear-lanceolate, base attenuated, 12–15 inches long, ¾ of an inch wide, erect, thick, coriaceous, smooth ; margin thickened. *Veins* immersed. *Sori* irregular.—Tropical America.

4. **C. cæspitosum,** *Link.* Polypodium cæspitosum, *Link; Metten. Fil. Hort. Leip. t.* 24. *f.* 4, 5.—Tropical America.

5. **C. repens,** *Presl; Hook. Gen. Fil. t.* 71, *A.* Polypodium repens, *Linn.; Plum. Fil. t.* 134.—Tropical America.

6. **C. Phyllitidis,** *Presl.* Polypodium Phyllitidis, *Linn.; Plum. Fil. t.* 130.—Tropical America.

7. **C. nitidum,** *Presl.* Polypodium nitidum, *Kaulf.*—Tropical America.

** *Fronds pinnate.*

8. **C. decurrens,** *Presl.* Polypodium decurrens, *Radd. Fil. Br. t.* 33. Polypodium polyanthos, *Hort. Brux.*—Brazil.

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20. DRYNARIA, *Bory; J. Sm.*

(Drynaria § vera, *J. Sm. Gen. Fil.* Drynariæ sp., *Fée.* Phymatodis sp., *Presl.* Polypodii sp., *Auct.*)

Fronds rigid; the sterile (when present) sessile, broad cordate, sinuose or laciniated; the fertile stipitate or sessile, pinnatifid or pinnate, rarely simple, the segments articulated with the rachis; when sessile, the base is similar to the special sterile frond. *Veins* external, elevated, compound anastomosing, forming quadrate or hexagonal areoles; primary veins costæform or obsolete. *Sporangiferous receptacles* compital. *Sori* round, small, numerous, and irregular, or transversely or obliquely serial, sometimes confluent, forming a linear sorus between the costæform veins.

* *Sori transversely uniserial.*

† *Fronds pinnatifid.*

1. **D. propinqua,** *J. Sm.* Polypodium propinquum, *Wall.* Phymatodes propinqua, *Presl.*—East Indies.

†† *Fronds pinnate.*

2. **D. diversifolia,** *J. Sm.* Polypodium diversifolium, *R. Br.* Polypodium Gaudichaudii, *Bory; Bl. Fl. Jav. t.* 57. Drynaria pinnata, *Fée.* Polypodium glaucistipes, *Wall.*—East Indies, Malayan Archipelago, and Australia.

** *Sori oblique, uniserial.*

† *Fronds pinnatifid.*

3. **D. coronans,** *J. Sm.; Fée.* Polypodium coronans, *Wall.* Phymatodes coronans, *Presl.*—East Indies and Malacca.

*** *Sori oblique, biserial.*

5. **D. quercifolia,** *Bory; Fée.* Polypodium quercifolium, *Linn.; Schk. Fil. t.* 13. Phymatodes quercifolia, *Presl.*—East Indies, Mauritius, Malayan Archipelago, and Australia.

**** *Sori numerous, irregular.*

† *Fronds simple.*

6. **D. musæfolia,** *J. Sm.* Polypodium musæfolium, *Bl. Fl. Jav. t.* 79. Polypodium microsorum, *Metten. Cat. Hort. Herrenh.*—Malayan Archipelago.

†† *Fronds pinnatifid.*

7. **D. morbillosa,** *J. Sm.* Polypodium morbillosum, *Presl, Reliq. Hænk. t.* 3. *f.* 2. Phymatodes morbillosa, *Presl, Pterid.*—Malayan Archipelago.

Div. II. **Desmobrya,** *J. Sm.*

Fronds in vernation terminal, uniserial or fasciculate; their bases adherent and united, constituting the axis of development, which elongates either in the form of a creeping or scandent sarmentum, or a decumbent or erect more or less elevated cormiform caudex.

21. **STRUTHIOPTERIS,** *Willd.*

Vernation fasciculate, erect. *Fronds* pinnate or bipinnate, 1–3 feet high. *Veins* pinnate; venules free. The fertile pinnæ contracted, linear, with membranous, revolute, conniving margins, forming a uniserial indusium. *Sporangia* medial, base of the pedicels concrete, forming thickened receptacles. *Sori* round, confluent.

1. **S. Germanica,** *Willd.* Onoclea Struthiopteris, *Sw.; Schk. Fil. t.* 105; *Hook. Gen. Fil. t.* 69.—Germany.
2. **S. Pennsylvanica,** *Willd.*—North America.

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22. LEPTOGRAMME, *J. Sm.*

(Gymnogrammitidis sp., *Link; Fée.* Grammitidis sp., *Presl.*)

Vernation fasciculate, erect or decumbent. *Fronds* bipinnatifid, 1–3 feet high. *Veins* of laciniæ pinnate; venules free. *Sporangiferous receptacles* medial, elongated. *Sori* oblong or linear. *Sporangia* in some species pilose.

1. **L. totta,** *J. Sm. Gen. Fil.* Polypodium tottum, *Willd.* Gymnogramme totta, *Schlecht.; Bl. Fl. Jav. t.* 38. Grammitis totta, *Presl.* Gymnogramme Lowei, *Hook. et Grev. Ic. Fil. t.* 89.—South Africa and Madeira.
2. **L. asplenioides,** *J. Sm.* Gymnogramme asplenioides, *Sw.; Kaulf.* Gymnogramme aspidioides, *Kaulf.* Ceterach aspidioides, *Willd.; Radd. Fil. Bras. t.* 21. *f.* 1. Phegopteris aspidioides, *Metten. Fil. Hort. Leip. t.* 17. *f.* 1.—Tropical America.
3. **L. Linkiana,** *J. Sm.* Gymnogramme Linkiana, *Kunze; Fée.* Grammitis Linkiana, *Presl.*—Brazil.
4. **L. rupestris,** *J. Sm.* Gymnogramme rupestris, *Kunze.* Phegopteris rupestris, *Metten.*—Tropical America.
5. **L. gracile,** *J. Sm.* Gymnogramme gracilis, *Hew. in Mag. Nat. Hist.* (1838). Grammitis Hewardii, *T. Moore.* Leptogramme attenuata, *J. Sm. En. Fil. Hort. Kew.* (1856). —Jamaica.
6. **L. villosa,** *J. Sm.* Gymnogramme villosa, *Link.*—Tropical America.

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23. PHEGOPTERIS, *Fée; J. Sm.*

(Polypodii sp., *Auct.* Polypodium § Phegopteris, *Presl.*)

Vernation uniserial and sarmentose, or fasciculate and erect or decumbent. *Fronds* varying from pinnate to decompound-multifid, and from 1–6 feet high. *Veins* forked or pinnate; venules free. *Sporangia* terminal, medial, or basal. *Sori* round, rarely oblong, naked.

§ 1. Anopodium, J. Sm.—*Vernation fasciculate, forming an erect corm or caudex.*

1. **P. hastæfolia,** *J. Sm.* Polypodium hastæfolium, *Sw.; Hook. et Grev. Ic. Fil. t.* 203.—Jamaica.
2. **P. mollicula,** *J. Sm.* Polypodium molliculum, *Kunze.*—(Hort. Berol.)
3. **P. submarginalis,** *J. Sm.* Polypodium submarginalis, *Lang. et Fisch. t.* 12.—Brazil.
4. **P. decussata,** *J. Sm.* Polypodium decussatum, *Linn.; Plum. Fil. t.* 24. Polypodium grammicum, *Spr.*—West Indies.
5. **P. macroptera,** *Fée.* Polypodium macropterum, *Kaulf.* Alsophila Fischeriana, *Regel, Hort. Petrop.*—Brazil.
6. **P. formosa,** *Fée.* Polypodium formosum, *Radd. Fil. Bras. t.* 38.—Brazil.
7. **P. ampla,** *Fée.* Polypodium amplum, *Humb.*—Martinique.
8. **P. spectabilis,** *Fée.* Polypodium spectabile, *Kaulf.*—Tropical America.
9. **P. lachnopoda,** *J. Sm.* Polypodium lachnopodum, *J. Sm. En. Fil. Hort. Kew.* (1846).—Jamaica.
10. **P. alpestris,** *J. Sm.* Polypodium alpestre, *Spr.; Lindl. and Moore's Brit. Ferns, t.* 7, *A*, *B*, *C.* Aspidium alpestre, *Hoppe; Sw.; Schk. Fil. t.* 60, *exclus. syn. Linn.*—Europe.
11. **P. flexilis,** *J. Sm.* Polypodium flexile, *Moore.* Polypodium alpestre, *var.* flexile, *Lindl. and Moore's Brit. Ferns, t.* 7, *D*, *E.*—Scotland.
12. a **P. drepan~~um~~,** *J. Sm.* Aspidium drepanum, *Sw.; Schk. Fil. t.* 43, *C.* Polystichum drepanum, *Presl.*—Madeira.

§ 2. Catapodium, J. Sm.—*Vernation fasciculate, decumbent.*

13. **P. divergens,** *Fée.* Polypodium divergens, *Willd.* Polypodium multifidum, *Jacq. Ic. Rar. t.* 643.—West Indies.

14. **P. effusa,** *Fée.* Polypodium effusum, *Sw.; Sloane, Hist. Jam. t.* 57. *f.* 3.—West Indies.
15. **P. trichodes,** *J. Sm.* Polypodium trichodes, *J. Sm. En. Fil. Phil.* (*non Reinw.*)—Malayan Archipelago.

§ 3. PHEGOPTERIS VERA.—*Vernation uniserial, distant.*

16. **P. aurita,** *J. Sm.* Gymnogramme aurita, *Hook. Ic. Pl. t.* 974 *and* 989. Grammitis aurita, *T. Moore.*—East Indies.
17. **P. hexagonoptera,** *Fée.* Polypodium hexagonopterum, *Michx.*—North America.
18. **P. calcarea,** *Fée.* Polypodium calcareum, *Sm. Eng. Bot. t.* 1525. Polypodium Robertianum, *Hoff.; Lindl. and Moore's Brit. Ferns, t.* 6.—Temperate Zone of the Northern Hemisphere.
19. **P. Dryopteris,** *Fée.* Polypodium Dryopteris, *Linn.; Schk. Fil. t.* 25; *Eng. Bot. t.* 616; *Lindl. and Moore's Brit. Ferns, t.* 6.—Temperate Zone of the Northern Hemisphere.
20. **P. vulgaris,** *Metten.* Phegopteris polypodioides, *Fée.* Polypodium Phegopteris, *Linn.; Eng. Bot. t.* 2224; *Schk. Fil. t.* 20; *Lindl. and Moore's Brit. Ferns, t.* 4.—Temperate Zone of the Northern Hemisphere.
21. **P. rugulosa,** *Fée.* Polypodium rugulosum, *Labill. Nov. Holl. t.* 241.—Tasmania and New Zealand.

24. HYPOLEPIS, *Bernh.*

(Cheilanthis sp., *Sw.; Auct.*)

Vernation uniserial, sarmentose. *Fronds* bi-tripinnate, 1–6 feet high, smooth, pilo-glandulose or aculeate. *Veins* forked or pinnate; venules free, the lower exterior branch sporangiferous on its apex. *Sori* round, marginal, each seated in the axis of a reflexed indusiform crenule.

1. **H. repens,** *Presl; Hook. Sp. Fil. v.* 2. *t.* 90 *B.* Lonchites repens, *Linn.; Plum. Fil. t.* 12.—West Indies.
2. **H. tenuifolia,** *Bernh.; Hook. Sp. Fil. v.* 2. *t.* 89 *C.* Lon-

chites tenuifolia, *Forst.* Cheilanthes arborescens, *Sw.*—Malayan Archipelago and Polynesia.

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25. GYMNOGRAMME, *Desv.*

(Hemionitidis sp. *et* Grammitidis sp., *Auct.* Neurogramme, *Link.* Ceropteris, *Link.* Anagramme, *Link.* Pleurosorus, *Fée.*)

Vernation fasciculate, erect. *Fronds* simple, pinnate, bipinnatifid, or multifid, smooth, villose, or farinose, from a few inches to 2–3 feet high. *Veins* forked; venules free, sporangiferous nearly their whole length. *Sori* linear, simple, or forked, often becoming confluent.

§ 1. NEUROGRAMME.—*Fronds pinnate or bipinnate, villose.*

1. **G. rufa,** *Desv.* Hemonitis rufa, *Sw.; Schk. Fil. t.* 17, 21.—Tropical America.
2. **G. tomentosa,** *Desv.* Hemionitis tomentosa, *Radd. Fil. Bras. t.* 19.—Tropical America.
3. **G. ferruginea,** *Kunze.* G. lanata, *Klotzsch.*—Tropical America.

§ 2. CEROPTERIS.—*Fronds bi-tripinnatifid or multifid, covered with waxy farina.*

4. **G. Calomelanos,** *Kaulf.; Hook. Gen. Fil. t.* 37. Acrostichum Calomelanos, *Linn.; Plum. Fil. t.* 40*; Schk. Fil. t.* 5.—Tropical America.
5. **G. Tartarea,** *Desv.* Acrostichum tartareum, *Sw.*—Tropical America.
6. **G. ochracea,** *Presl.*—Tropical America.
7. **G. L'Herminieri,** *Bory* (*accord. to Link*).—Guadeloupe. (*Link.*)
8. **G. chrysophylla,** *Kaulf.* Acrostichum chrysophyllum, *Sw.; Plum. Fil. t.* 41.—West Indies.
9. **G. Martensii,** *Bory* (*according to Link*).

10. **G. sulphurea,** *Desv.* Acrostichum sulphureum, *Sw.; Schk. Fil. t.* 4.—West Indies.

11. **G. pulchella,** *Linden's Cat.; T. Moore, in Gard. Chron.* 1854.—Venezuela.

12. **G. Peruviana,** *Desv.; Kunze, Fil. t.* 32. *Var.* dealbata, *T. Moore.*—Tropical America.

§ 3. ANAGRAMME.—*Fronds bi-tripinnatifid, smooth.* (*Annuals.*)

13. **G. leptophylla,** *Desv.; Hook. et Grev. Ic. Fil. t.* 25. Grammitis leptophylla, *Sw.* Polypodium leptophyllum, *Linn.; Schk. Fil. t.* 26.—South of Europe, etc.

14. **G. chærophylla,** *Desv.; Hook. et Grev. Ic. Fil. t.* 45.—Tropical America.

§ 4. PLEUROSORUS.—*Fronds pinnatifid or pinnate, piloso-glandulose.*

15. **G. rutæfolia,** *Hook. et Grev. Ic. Fil. t.* 90. Grammitis rutæfolia, *R. Br.*—Australia.

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26. CONIOGRAMME, *Fée.*

(Grammitidis sp., *Wall.* Gymnogrammitidis sp., *Blume.*)

Vernation contiguous, decumbent, subsarmentose. *Fronds* pinnate or bipinnate, 2–5 feet high, smooth; pinnæ and pinnules broad elliptical-lanceolate, distant, smooth. *Veins* forked, parallel, free. *Sporangia* occupying nearly the whole length of the venules. *Sori* linear, forked, contiguous, naked.

1. **C. Javanica,** *Fée.* Gymnogramme Javanica, *Bl. Fl. Jav. t.* 41.—Malay Archipelago.

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27. HEMIONITIS, *Linn.*

Vernation fasciculate, erect, short. *Fronds* simple cordate, palmate, or pinnate, smooth or densely villose. *Veins* uniform, reticulated, wholly occupied by the sporangia, constituting reticulate sori.

1. **H. cordata,** *Roxb.; Hook. et Grev. Ic. Fil. t.* 64. H. sagittata, *Fée.*—East Indies.
2. **H. palmata,** *Linn.; Plum. Fil. t.* 151; *Hook. Ex. Fl. t.* 33; *Schott, Gen. Fil. t.* 9.—West Indies.
3. **H. pedata,** *Sw. Syn. Fil. t.* 1. *f.* 3. Gymnogramme pedata, *Kaulf.*—Mexico.

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28. GONIOPTERIS, *Presl.*

(Polypodii sp., *Auct.*)

Vernation fasciculate, erect or decumbent. *Fronds* pinnatifid or pinnate, rarely simple, 1–4 feet high. *Primary veins* costæform, pinnate; venules opposite, the whole or only the lower pair, or more angularly anastomosing, producing from their junction an excurrent sterile veinlet, which is either free or anastomoses in the angle next above it. *Sporangia* pilose in some species, produced between the base and angular junction of the venules. *Sori* round, oblique, biserial.

1. **G. scolopendroides,** *Presl.* Polypodium scolopendroides, *Sw.; Plum. Fil. t.* 91. Goniopteris subpinnata, *Hort.*—Jamaica.
2. **G. reptans,** *Presl.* Polypodium reptans, *Sw.; Sloane's Jam.* 2. *t.* 30. Polypodium compositum, *Link.*—Jamaica.
3. **G. asplenoides,** *Presl.* Polypodium asplenoides, *Sw.*—Jamaica.
4. **G. crenata,** *Presl; Hook. Gen. Fil. t.* 38. Polypodium crenatum, *Sw.; Plum. Fil. t.* 3.—West Indies.
5. **G. megalodes,** *Presl.* Polypodium megalodes, *Schk. Fil. t.* 19 *b.*—West Indies.
6. **G. tetragona,** *Presl.* Polypodium tetragonum, *Sw.; Schk. Fil. t.* 18 *b.*—West Indies.
7. **G. serrulata,** *J. Sm.* Polypodium serrulatum, *Sw.; Presl; Sloane's Jam. t.* 43. *f.* 1.—Jamaica.
8. **G. refracta,** *J. Sm.* Polypodium refractum, *Fisch. et Meyer.*—Brazil.

9. **G. prolifera,** *Presl.* Meniscium proliferum, *Sw.*—East Indies.
10. **G. vivipara,** *J. Sm.* Polypodium viviparum, *Radd. Fil. Bras. t.* 32. Polypodium proliferum, *Kaulf.* Goniopteris fraxinifolia, *Presl* (*non* Polypodium fraxinifolium, *Jacq.*).—Brazil.
11. **G. pennigera,** *J. Sm.* Polypodium pennigerum, *Forst.*—New Zealand.

29. MENISCIUM, *Schreb.*

Vernation fasciculate and decumbent, or uniserial and sarmentose. *Fronds* pinnate, rarely simple. *Primary veins* costæform, pinnate; each opposite pair of venules angularly or arcuately anastomosing and sporangiferous, producing from their junction an excurrent, free, sterile veinlet. *Sporangiferous receptacles* medial, linear, continued across the junction of the venules, forming arcuate, transverse sori. *Sporangia* in some species pilose.

1. **M. simplex,** *Hook. Lond. Journ. Bot. v.* 1. *t.* 11.—Hongkong.
2. **M. palustre,** *Radd. Fil. Bras. t.* 20; *Hook. Gen. Fil. t.* 40.—Brazil.
3. **M. dentatum,** *Presl.*—Brazil.
4. **M. reticulatum,** *Sw.; Schk. Fil. t.* 5. Polypodium reticulatum, *L.*—Tropical America.

30. VITTARIA, *Sm.*

(Vittaria et Tæniopsis, *J. Sm. Gen. Fil.*)

Vernation uniserial, contiguous; sarmentum short, furnished with hyaline squamæ. *Fronds* simple, linear, smooth, rigid or flaccid and pendulous, from a few inches to 2-3 feet in length. *Veins* simple, forming an acute angle with the midrib, their apices prolonged into a transverse marginal vein, which becomes the sporangiferous receptacle. *Sporangia* seated in a groove or slit, the margins of which are indusiform. *Sori* marginal or slightly intramarginal, linear, continuous.

1. **V. lineata,** *Sm.; Schk. Fil. t.* 101 *b.* V. graminifolia, *Kaulf.*—Tropical America.
2. **V. zosteræfolia,** *Willd.; Fée, Mem. Fil. t.* 2. *f.* g.—Mauritius.

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31. **ANTROPHYUM,** *Kaulf.*

Vernation uniserial, contiguous; sarmentum short (undefined) squamose. *Fronds* simple, linear-lanceolate or oblong-elliptical, smooth, coriaceous, with or without a defined midrib. *Veins* uniform, reticulated, more or less linearly sporangiferous. *Receptacles* immersed, rarely superficial, forming linear, continuous or interrupted, reticulated sori.

1. **A. lanceolatum,** *Kaulf.* Hemionitis lanceolata, *Linn.; Plum. Fil. t.* 127. *f.* c; *Schk. Fil. t.* 6.—West Indies.
2. **A. cayennense,** *Spreng.* Hemionitis cayennensis, *Desv.; Presl.*—Tropical America.

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32. **CERATOPTERIS,** *Brongn.*

(Parkeria, *Hook.*)

Vernation fasciculate, erect (annual). *Fronds* fragile: the fertile decompound; segments forked, linear; margins revolute, membranaceous, conniving, indusiform. *Veins* transversely elongated, distantly anastomosing. *Sporangia* occupying the transverse venules, superficial, large, definitely disposed in a simple series, constituting two linear, subparallel sori.

1. **C. thalictroides,** *Brongn.; Hook. Gen. Fil. t.* 12. Ellobocarpus oleraceus, *Kaulf.*—Tropics.

TRIBE II. **ACROSTICHEÆ,** *J. Sm.*

Fertile fronds or segments always more or less contracted; the under side (or rarely both sides) densely sporangiferous. *Sori* undefined (amorphous).

33. **PŒCILOPTERIS,** *Eschw.; Presl.*

(Cyrtogonium, *J. Sm. Gen. Fil.* Campium, *Presl.* Heteroneuron, *Fée.* Bolbitis, *Schott.* Jenkinsia, *Hook.* Acrostichi sp., *Auct.*)

Vernation uniserial, distant or contiguous, subfasciculate and decumbent. *Fronds* pinnate, 1–3 feet high, often bulbiferous. *Primary veins* costæform, pinnate; venules arcuately or angularly anastomosing, producing on their exterior sides or angles one or more free or anastomosing veinlets, forming unequal areoles. *Sporangia* amorphous, or sometimes in defined lines on the venules (*Jenkinsia*).

1. **P. flagellifera,** *J. Sm.* Acrostichum flagelliferum, *Wall.; Hook. et Grev. Ic. Fil. t.* 23.—East Indies.
2. **P. crispatula,** *J. Sm.* Acrostichum crispatulum, *Wall.*—East Indies.

34. **GYMNOPTERIS,** *Bernh.; Presl.*

(Acrostichi sp., *Auct.*)

Vernation uniserial and sarmentose, or contiguous, subfasciculate and decumbent. *Fronds* simple, lobed or pinnate, from 6 inches to 2–3 feet high. *Primary veins* costæform; venules compound anastomosing. *Sporangia* amorphous.

1. **G. quercifolia,** *Bernh.; Presl; Hook. Ic. Pl. t.* 905. Acrostichum quercifolium, *Retz; Sw.; Schk. Fil. t.* 3.—Ceylon.
2. **G. nicotianæfolia,** *Presl.* Acrostichum nicotianæfolium, *Sw.*—West Indies.
3. **G. aliena,** *Presl; Hook. Gen. Fil. t.* 85. Acrostichum alienum, *Sw.; Plum. Fil. t.* 10.—Tropical America.

35. **STENOSEMIA,** *Presl.*

(Polybotryæ sp., *Bl.* Acrostichi sp., *Auct.*)

Vernation fasciculate, erect. *Fronds* ternately pinnate; pinnæ laciniately lobed, bulbiferous. *Veins* pinnate; the lower venules transversely anastomosing, forming elongated, costal and subcostal areoles, the superior venules free. *Fertile segments* linear, rachiferous, convolute, nearly wholly sporangiferous.

1. **S. aurita,** *Presl.* Acrostichum auritum, *Sw.* Polybotrya aurità, *Bl. Fl. Jav. t.* 1.—Java.

36. OLFERSIA, *Radd.; Presl.*

(Dorcapteris, *Presl.*)

Vernation uniserial, contiguous; sarmentum scandent, squamose. *Fronds* pinnate, 1–3 feet high. *Veins* uniform, simple or forked, direct, parallel, their apices combined by a transverse marginal vein. *Fertile pinnæ* linear or pinnatifid, convolute, wholly sporangiferous.

1. **O. cervina,** *Presl.* Acrostichum cervinum, *Sw.; Plum. Fil. t.* 154. O. corcovadensis, *Radd. Fil. Bras. t.* 14; *Hook. Gen. Fil. t.* 79 *A.* Acrostichum linarifolium, *Presl.*—Tropical America.

37. SOROMANES, *Fée.*

(Polybotrya § Soromanes, *Klotzsch.*)

Vernation uniserial; sarmentum thick, scandent, squamose. *Sterile fronds* pinnate, 1–2 feet high. *Veins* pinnate; venules acutely anastomosing, forming oblique, elongated areoles; apices next the margin free and clavate. *Fertile fronds* bipinnate; segments convolute, wholly sporangiferous.

1. **S. serratifolium,** *Fée, Acrost. t.* 43.—Venezuela.

38. POLYBOTRYA, *Humb.*

Vernation uniserial; sarmentum scandent, squamose. *Fronds* bi-tripinnate, 2–3 feet high. *Veins* pinnate; venules free. *Fertile segments* convolute, pinnatifid or spicæform, wholly sporangiferous.

1. **P. osmundacea,** *Humb. et Bonpl. Nov. Gen. t.* 1; *Hook.*

Gen. Fil. t. 78 *B.* P. cylindrica, *Kaulf.*—Tropical America.

2. **P. acuminata,** *Link; Metten. Fil. Hort. Leip. t.* 2. *f.* 1–6.—Brazil.
3. **P. incisa,** *Link.*—Brazil.

39. LOMARIOPSIS, *Fée.*

(Stenochlænæ sp., *J. Sm. Gen. Fil.* Acrostichi *et* Lomariæ sp., *Auct.*)

Vernation uniserial; sarmentum scandent, squamose. *Fronds* pinnate, 1–3 feet high; pinnæ articulate with the rachis. *Veins* uniform, simple or forked, direct, parallel, free. *Fertile pinnæ* plain, often broad, sporangiferous on the under side; margin membranous, narrow, subindusiform.

1. **L. sorbifolia,** *Fée.* Acrostichum sorbifolium, *Linn.; Plum. Fil. t.* 117. Stenochlæna sorbifolia, *J. Sm. Gen. Fil.*—West Indies.
2. **L. longifolia,** *J. Sm.* Lomaria longifolia, *Kaulf.*—Tropical America.

40. ELAPHOGLOSSUM, *Schott; J. Sm.*

(Acrostichi sp., *Fée et Auct., non Linn.* Olfersiæ sp., *Presl.*)

Vernation uniserial and sarmentose, or subfasciculate and decumbent, squamose. *Stipes* pseudo-articulate, node elevated. *Fronds* simple, entire, from 2 inches to 2½ feet high, smooth or squamose. *Veins* simple or forked, parallel, direct, their apices free and clavate. *Fertile fronds* plain, the under side sporangiferous.

1. **E. conforme,** *Schott.* Acrostichum conforme, *Sw. Syn. Fil. t.* 1. *f.* 1.—South Africa and Java.
2. **E. callæfolium,** *J. Sm.* Acrostichum callæfolium, *Bl. Fl. Jav. t.* 4.—Java.
3. **E. longifolium,** *J. Sm.* Acrostichum longifolium, *Jacq.; Plum. Fil. t.* 135.—Tropical America.
4. **E. latifolium,** *J. Sm.* Acrostichum latifolium, *Sw.*—Tropical America.

5. **E. scolopendrifolium,** *J. Sm.* Acrostichum scolopendrifolium, *Radd. Fil. Bras. t.* 16.—Brazil.
6. **E. muscosum,** *J. Sm.* Acrostichum muscosum, *Sw.* Acrostichum vestitum, *Hook. et Grev. Ic. Fil. t.* 235.—Madeira and Tropical America.
7. **E. lepidotum,** *J. Sm.* Acrostichum lepidotum, *Willd.*—Tropical America.
8. **E. rubiginosum,** *J. Sm.* Acrostichum rubiginosum, *Fée, Acrost. t.* 5. *f.* 1, *et t.* 13. *f.* 1. A. Schiedei, *Kunze.* A. frigida, *Linden.*—Tropical America.
9. **E. brachyneuron,** *J. Sm.* Acrostichum brachyneuron, *Fée, Acrost. t.* 22. *f.* 1.—Tropical America.
10. **E. apodum,** *Schott.* Acrostichum apodum, *Hook. et Grev. Ic. Fil. t.* 99.—West Indies.
11. **E. microlepis,** *J. Sm.* Acrostichum microlepis, *Kunze.*—Venezuela.

41. HYMENODIUM, *Fée.*

(Dictyoglossum, *J. Sm.* Acrostichi sp., *Sw.*)

Vernation fasciculate, decumbent, densely crinite. *Fronds* simple, entire, squamiferous. *Veins* uniform, reticulated; areoles large, elongated, trapezoid or hexagonoid. *Fertile fronds* broad, densely sporangiferous on the under side.

1. **H. crinitum,** *Fée.* Acrostichum crinitum, *Sw.; Plum. Fil. t.* 125; *Hook. et Grev. Ic. Fil. t.* 1.—West Indies.

42. ACROSTICHUM, *Linn. (in part); J. Sm.*

(Chrysodium, *Fée.*)

Vernation fasciculate, erect, caudiciform. *Fronds* pinnate, smooth, 2–8 feet high; pinnæ entire, broad, the upper densely sporangiferous on their under side. *Veins* uniform, reticulated, forming numerous elongated, subquadrangular, parallel areoles.

1. **A. aureum,** *Linn.; Sw.; Plum. Fil. t.* 104; *Schk. Fil. t.* 1;

Hook. Gen. Fil. t. 81 *A.* Chrysodium aureum, *Fée.* Acrostichum fraxinifolium, *R. Br.*—Tropics and subtropics of the Southern Hemisphere.

43. PLATYCERIUM, *Desv.; Bl.*

(Neuroplatyceros, *Pluk.; Fée.* Acrostichi sp., *Auct.*)

Vernation articulate, rhizome obsolete. *Sterile fronds* sessile, oblique, reniform, depressed or elongated and subascending, alternately overlapping each other, forming an epiphytal, spongy mass, often 1–2 feet in diameter. *Fertile fronds* stipitate, rising from the sinus of the sterile, once or many times dichotomously forked, 2–6 feet in length; segments broad, obtuse, densely covered with stellated scales, coriaceous. *Veins* internal, compound anastomosing. *Sporangiferous receptacle* amorphous, occupying more or less of the under side of the segments, or on a sessile or petiolate lobe.

1. **P. alcicorne,** *Gaud.* Acrostichum alcicorne, *Sw.; Bot. Reg. t.* 262–3.—East Indies, Malay Archipelago, and Australia.
2. **P. Stemaria,** *Desv.* Acrostichum Stemaria, *Beauv.*—West Africa.
3. **P. grande,** *J. Sm.* Acrostichum grande, *A. Cunn.*—Malay Archipelago and Australia.

TRIBE III. PTERIDEÆ.

Sori round or linear, marginal, intramarginal, or costal, furnished with a special or universal lateral indusium, which is produced on the exterior side of the sporangiferous receptacle, sometimes undefined or obsolete.

SECT. I. CHEILANTHEÆ.

Sporangia terminal. *Sori* round or oblong, distinct or laterally contiguous and confluent, forming a compound linear sorus. *Indusium* marginal, special to each receptacle, or more or less linearly continued, and then common to two or more receptacles.

44. NOTHOLÆNA, *R. Br.; J. Sm.*

(Cheilanthis sp., *Auct.*)

Vernation fasciculate, generally erect. *Fronds* pinnate or bipinnate, 6–18 inches high, pilo-tomentose, squamose, or farinose. *Veins* forked, free. *Sporangia* terminal, few to each receptacle, contiguous, forming a marginal row in the axis of the reflexed pseudo-indusiform margin.

1. **N. trichomanoides,** *R. Br.* Pteris trichomanoides, *Linn.; Schk. Fil. t.* 99.—Jamaica.
2. **N. Marantæ,** *R. Br.* Acrostichum Marantæ, *Linn.; Schk. Fil. t.* 4.—South of Europe and North Asia.
3. **N. Canariense,** *J. Sm.* Acrostichum Canariense, *Willd.*—Teneriffe and Cape de Verd Islands.
4. **N. sinuata,** *Kaulf.; Kunze, Fil. t.* 45; *Bot. Mag. t.* 4699. Acrostichum sinuatum, *Sw.*—Mexico.
5. **N. lævis,** *Mart. et Gal.*—Mexico.
6. **N. Eckloniana,** *Kunze.*—South Africa.
7. e/ **N. lanuginosa,** *Desv.* Acrostichum lanuginosum, *Desf.; Schk. Fil. t.* 1. Acrostichum vellum, *Ait.*—South Europe and Madeira.

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45. MYRIOPTERIS, *Fée.*

(Cheilanthes § Physopteris, *Presl.* Cheilanthis sp., *Auct.*
Notholænæ sp., *J. Sm. Gen. Fil.*)

Vernation uniserial, sarmentose, or subfasciculate and cæspitose. *Fronds* 4–18 inches high, slender, decompound, pinnate, pilose or piloso-squamiferous; ultimate segments minute, orbicular or cuneiform, concave; the margin membranous, revolute, conniving, forming a uniserial, cucullate indusium. *Veins* forked, free. *Sporangia* terminal, few to each receptacle, confluent under the uniserial indusium.

1. **M. lendigera,** *Fée.* Cheilanthes lendigera, *Sw.; Hook. Sp. Fil. t.* 106 *A.* Notholæna lendigera, *J. Sm. Gen. Fil.*—Tropical America.

2. **M. myriophylla,** *J. Sm.* Cheilanthes myriophylla, *Desv.; Hook. Sp. Fil. t.* 105 *A.*—Tropical America.
3. **M. elegans,** *J. Sm.* Cheilanthes elegans, *Desv.; Hook. Sp. Fil. t.* 105 *B.* Myriopteris Marsupianthus, *Fée, Gen. Fil. t.* 12 *A. f.* 1.—Tropical America.
4. **M. tomentosa,** *Fée.* Cheilanthes tomentosa, *Link; Hook. Sp. Fil. t.* 109 *A.*—Mexico, and Southern United States.
5. **M. frigida,** *J. Sm.* Cheilanthes frigida, *Linden.*—Tropical America.
6. **M. vestita,** *J. Sm.* Cheilanthes vestita, *Sw.; Schk. Fil. t.* 124; *Hook. Sp. Fil. t.* 108 *B.* Notholæna vestita, *Desv.; J. Sm. Gen. Fil.*—Tropical America.

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46. CHEILANTHES, *Sw. (in part).*

(Hypolepidis sp., *Hook. et Auct.*)

Vernation fasciculate, erect or decumbent. *Fronds* bi-tripinnate, rarely simple pinnate, 4–18 inches or more in height, smooth, pilose, glandulose, squamose, or farinose; ultimate segments often small. *Veins* forked, free; sporangia terminal. *Sori* round, marginal, distinct or laterally confluent. *Indusium* reniform or subrotund and special to each sorus, or more or less elongated, crenated, and including two or more sori.

§ EUCHEILANTHES, Hook.

1. **C. micropteris,** *Sw. Syn. Fil. t.* 3. *f.* 5.—Quito and Brazil.
2. **C. viscosa,** *Link; Hook. Sp. Fil. t.* 93 *B.*—Tropical America.
3. **C. fragrans,** *Sw. (in part); Hook.* Polypodium fragrans, *Linn.* Cheilanthes odora, *Sw.; Schk. Fil. t.* 123. C. suaveolens, *Sw.; Schk. Fil. t.* 19. C. Maderensis, *Lowe.*—South Europe, and Madeira.
4. **C. tenuifolia,** *Sw.; Schk. Fil. t.* 125; *Hook. Sp. Fil. t.* 87 *C.*—East Indies, Malay Archipelago, Australia, and New Zealand.
5. **C. microphylla,** *Sw.* C. micromera, *Hook. Sp. Fil. t.* 98 *A.*—Tropical America.

6. **C. Alabamensis,** *Kunze; Hook. Sp. Fil. t.* 103 *B.*—South United States.

7. **C. spectabilis,** *Kaulf.* C. Brasiliensis, *Radd. Fil. Bras. t.* 75. *f.* 2. Hypolepis spectabilis, *Presl; Hook. Sp. Fil. t.* 88 *B.* Adiantopsis spectabilis, *Fée.*—Brazil.

§ ACTINOPTERIS, J. Sm.

8. **C. radiata,** *J. Sm.* Adiantum radiatum, *Linn.; Sw.; Plum. Fil. t.* 100. Hypolepis radiata, *Hook. Sp. Fil. t.* 91 *A.* Adiantopsis radiata, *Feé.*—Tropical America.

§ ALEURITOPTERIS, J. Sm.; Fée.

9. **C. argentea,** *Kunze.* Pteris argentea, *Gmel.; Sw.*—Siberia.

10. **C. farinosa,** *Kaulf.; Hook. et Grev. Ic. Fil. t.* 134. Pteris farinosa, *Forsk.* C. dealbata, *Don.* Allosorus dealbatus, *Presl.* Pteris argyrophylla, *Sw.*—India, Arabia, and Mexico.

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47. CRYPTOGRAMME, *R. Br.*

(Allosori sp., *Bernh.; Presl; J. Sm.* Phorolobus, *Desv.; Fée.* Pteridis sp., *Auct.*)

Vernation fasciculate, erect, cæspitose. *Fronds* bi-tripinnate, 6–10 inches high, the fertile contracted; segments oblong, linear; margins membranous, revolute, oppositely conniving, forming a universal indusium. *Veins* forked, free, the upper portion sporangiferous. *Sori* defined, oblong, becoming laterally confluent, forming a compound, broad, intramarginal, linear sorus, included under the universal indusium.

1. **C. crispa,** *R. Br.* Pteris crispa, *Linn.; Sw.; Schk. Fil. t.* 98; *Eng. Bot. t.* 1160. Allosorus crispus, *Bernh.; Presl; J. Sm. Gen. Fil.; Lindl. and Moore's Brit. Ferns, t.* 8. Phorolobus crispus, *Desv.*—Temperate regions of the Northern Hemisphere.

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48. CINCINALIS, *Desv. in part; Fée.*

Vernation fasciculate, erect. *Fronds* tripinnate, 4–12 inches high, slender; pinnæ distant, spreading; pinnules ovate, hastate-lobed, or trifoliate, plain, smooth, glaucous, or farinose. *Veins* forked, free. *Sporangia* large, globose, sessile, definite, in a short series on the upper portion of the venules, becoming laterally confluent, forming a broad sub-intramarginal sorus. *Indusium* obsolete or very narrow.

* *Fronds smooth, glaucous.*

1. **C. tenera,** *Fée.* Notholæna tenera, *Gill.; Hook. Bot. Mag. t.* 3055; *Kunze, Fil. t.* 22. *f.* 2.—Chili.

** *Fronds farinose.*

2. **C. nivea,** *Desv.* Pteris nivea, *Lam.; Sw.* Notholæna nivea, *Desv.; Kunze, Fil. t.* 22. *f.* 1. Acrostichum albidulum, *Sw. Syn. Fil. t.* 1. *f.* 2. Notholæna incana, *Presl, Rel. Hænk. t.* 1. *f.* 2.—Tropical America.
3. **C. flavens,** *Desv.* Acrostichum flavens, *Sw.* Gymnogramme flavens, *Kaulf.*—Tropical America.

49. PELLÆA, *Link.*

(Allosori sp., *Presl.* Platylomæ et Cassebeeræ sp., *J. Sm. Gen. Fil.* Pteridis sp., *Auct.*)

Vernation fasciculate, erect or decumbent, squamose. *Fronds* palmate, pinnate, or bi-tripinnate, 5 inches to 6 feet high; pinnules articulated to the rachis or to a short petiole. *Veins* forked; venules free. *Sporangiferous receptacles* terminal, generally contiguous, forming a more or less broad, compound, continuous marginal sorus, or rarely distant, and each receptacle forming definite round sori. *Indusium* linearly continuous, or subrotund and special to each receptacle.

1. **P. geraniifolia,** *Fée.* Pteris geraniifolia, *Radd. Fil. Bras. t.* 67; *Hook. Ic. Pl. t.* 915.—East Indies, Polynesia, Tropical America.
2. **P. intramarginalis,** *J. Sm.* Pteris intramarginalis, *Kaulf.; Kunze, Analect. Pterid. t.* 17. *f.* 1. Pteris fallax, *Mart. et Gal. Fil. Mex. t.* 14. *f.* 2. Cheilanthes intramarginalis, *Hook.*—Mexico.

3. **P. hastata,** *Link; Fée.* Pteris hastata, *Sw.* Allosorus hastatus, *Presl; Hook. Gen. Fil. t.* 5.—South Africa.
4. **P. atropurpurea,** *Link; Fée.* Pteris atropurpurea, *Linn.; Schk. Fil. t.* 99.—North America.
5. **P. Calomelanos,** *Link; Fée.* Pteris Calomelanos, *Sw.; Schlecht. Adumb. t.* 29. Allosorus Calomelanos, *Presl; Hook. in Bot. Mag. t.* 4769.—South Africa.
6. **P. ternifolia,** *Link; Fée.* Pteris ternifolia, *Cav.; Hook. et Grev. Ic. Fil. t.* 126.—Tropical America.
7. **P. flexuosa,** *Link; Fée.* Pteris flexuosa, *Kaulf.; Hook. Ic. Pl. t.* 119. Allosorus flexuosus, *Kunze, Fil. t.* 23; *Hook. in Bot. Mag. t.* 4762.—Tropical America.
8. **P. cordata,** *J. Sm., non Fée.* Pteris cordata, *Cav.* Allosorus cordatus, *Presl; Hook. in Bot. Mag. t.* 4698.—Tropical America.

50. PLATYLOMA, *J. Sm. (in part).*

(Allosori sp., *Presl.* Pellææ sp., *Fée.* Adianti sp., *R. Br.* Pteridis sp., *Auct.*)

Vernation uniserial, sarmentum sub-hypogæous. *Fronds* pinnate, 1–2 feet high; pinnæ entire, opaque. *Veins* forked; venules free. *Sporangiferous receptacles* terminal, oblong, contiguous, forming a broad, compound, continuous, marginal sorus. *Indusium* linear, continuous, narrow, subobsolete.

1. **P. Brownii,** *J. Sm.* Adiantum paradoxum, *R. Br.* Pellæa cordata, *Feé* (*non J. Sm.*).—Australia.
2. **P. falcata,** *J. Sm.; Hook. Gen. Fil. t.* 115 *A* (*excl. name* P. Brownii). Pteris falcata, *R. Br.* Pteris seticaulis, *Hook. Ic. Pl. t.* 207.—East Indies, Australia.
3. **P. rotundifolia,** *J. Sm.* Pteris rotundifolia, *Forst.; Schk. Fil. t.* 99; *Hook. Ic. Pl. t.* 422.—New Zealand.

51. ADIANTUM, *Linn.*

Vernation distant, sarmentose or subfasciculate, decumbent and cæspitose. *Fronds* simple-reniform, pinnate or bi-tripinnate; pinnæ and pinnules articulated with the petiole; costa excentric or obsolete. *Veins* unilateral or radiating, forked; venules free, terminating in the axis of a reflexed orbicular or elongated portion of the margin (indusium), which is altered in texture, venose and sporangiferous on its under side, and ultimately becomes replicate.

1. **A. reniforme,** *Linn.; Hook. Exot. Fl. t.* 104; *Hook. Sp. Fil. t.* 71 *A.*—Madeira, Teneriffe.
2. **A. caudatum,** *Linn.; Schk. Fil. t.* 117.—East Indies.
3. **A. obliquum,** *Willd.; Hook. Sp. Fil. t.* 79 *A.*—Tropical America.
4. **A. lucidum,** *Sw.; Hook. Sp. Fil. t.* 79 *C.*—Tropical America.
5. **A. Wilsoni,** *Hook. Sp. Fil. t.* 72 *A.*—Jamaica.
6. **A. macrophyllum,** *Sw.; Hook. et Grev. Ic. Fil. t.* 132.—Tropical America.
7. **A. pulverulentum,** *Linn.; Plum. Fil. t.* 55; *Schk. Fil. t.* 119.—Tropical America.
8. **A. heterophyllum,** *Willd.*—Tropical America.
9. **A. prionophyllum,** *H. B. K.*—Tropical America.
10. **A. Brasiliense,** *Radd. Fil. Bras. t.* 76.—Brazil.
11. **A. fovearum,** *Radd. Fil. Bras. t.* 77.—Brazil.
12. **A. cultratum,** *J. Sm.; Hook. Sp. Fil.*—West Indies.
13. **A. trapeziforme,** *Linn.* A. rhomboideum, *Schk. Fil. t.* 122.—Tropical America.
14. **A. pentadactylon,** *Lang. et Fisch. Ic. Fil. t.* 25; *Hook. et Grev. Ic. Fil. t.* 98.—Brazil.
15. **A. pedatum,** *Linn.; Schk. Fil. t.* 115.—North America, Northern India.
16. **A. affine,** *Willd.* A. trapeziforme, *Forst.* (*non Linn.*); *Schk. Fil.* 121 *B.* A. Cunninghami, *Hook. Sp. Fil. t.* 86 *A.*—New Zealand.
17. **A. formosum,** *R. Br.; Hook. Sp. Fil. t.* 86 *B.*—Australia, New Zealand.
18. **A. flabellatum,** *Linn.* A. amœnum, *Wall.; Hook. et Grev. Ic. Fil. t.* 103.—East Indies.

19. **A. tenerum,** *Sw.; Plum. Fil. t.* 95.—Tropical America.
20. **A. hispidulum,** *Sw.* A. pubescens, *Schk. Fil. t.* 116.—East Indies, Malay Archipelago, New Zealand, Australia.
21. **A. fulvum,** *Raoul; Hook. Sp. Fil. t.* 85 *A.*—New Zealand.
22. **A. setulosum,** *J. Sm. En. Fil. Hort. Kew.; Bot. Mag.* 1846.—Norfolk Island.
23. **A. Æthiopicum,** *Linn.; Hook. Sp. Fil. t.* 77 *A.*—Tropics.
24. **A. cuneatum,** *Lang. et Fisch. Ic. Fil. t.* 26; *Radd. Fil. Bras. t.* 30.—Brazil.
25. **A. assimile,** *Sw. Syn. Fil. t.* 3. *f.* 4. A. trigonum, *Labill. Nov. Holl. t.* 248. *f.* 2.—Australia, New Zealand.
26. **A. concinnum,** *H. B. K. Nov. Gen. Amer. t.* 668.—Tropical America.
27. **A. Capillus-Veneris,** *Linn.; Sm. Eng. Bot. t.* 1364; *Hook. Sp. Fil. t.* 74 *B.* A. Moritzianum, *Klotzsch.*—Tropical and Temperate Zones of both Hemispheres.

SECT. II. PTERIDEÆ VERÆ.

Sori marginal, transversely elongated. *Indusium* linear, plane.

52. ONYCHIUM, *Kaulf.*

(Leptostegia, *Don.*)

Vernation fasciculate and decumbent, or distant and sarmentose. *Fronds* decompound multifid, 1–3 feet high, smooth; sterile segments cuneiform. *Veins* forked, free, their apices clavate; fertile segments linear, apiculate, veins simple, short, their apices transversely combined by the sporangiferous receptacle. *Sorus* linear, in the axis of a linear, slightly intramarginal indusium, the inner free margin of which connives with the inner margin of the opposite indusium, ultimately becoming replicate, with the sporangia of both sori confluent.

1. **O. Japonicum,** *Kunze.* Trichomanes Japonicum, *Thunb.* O. Capense, *Kaulf. En. Fil. t.* 1. *f.* 8. O. lucidum, *Cat. Hort. Kew.* 1856 (*non Spreng. non Hook.*).—Japan.

2. **O. auratum,** *Kaulf.* Lomaria decomposita, *D. Don.* Pteris chrysocarpa, *Hook. et Grev. Ic. Fil. t.* 207.—East Indies and Malay Archipelago.

53. DORYOPTERIS, *J. Sm.; Fée.*

(Pteridis sp., *Auct.*)

Vernation fasciculate, erect, rarely uniserial sarmentose. *Fronds* simple, cordate-hastate, palmate, or bipinnate, smooth, opaque. *Veins* internal, reticulated. *Sporangiferous receptacles* transverse, marginal, continuous, in the axis of a linear, continuous indusium.

1. **D. sagittifolia,** *J. Sm.* Pteris sagittifolia, *Radd. Fil. Bras. t.* 63. *f.* 1.—Brazil.
2. **D. pedata,** *J. Sm.* Pteris pedata, *Linn.; Plum. Fil. t.* 152; *Lang. et Fisch. Ic. Fil. t.* 20.—Brazil.

54. PTERIS, *Linn. in part.*

Vernation fasciculate and erect or decumbent, or uniserial and sarmentose. *Fronds* pinnate, bi-tri-quadripinnate, rarely simple, from a few inches to six or more feet high; the ultimate pinnæ entire, sinuose-lobed, or pinnatifid. *Veins* forked; sterile venules free, the apices of the fertile transversely combined by the sporangiferous receptacle, constituting a linear, continuous or interrupted sorus. *Indusium* linear, marginal.

* *Vernation fasciculate.*

1. **P. longifolia,** *Linn.; Plum. Fil. t.* 69; *Schk. Fil. t.* 88. P. vittata, *Linn.* P. ensifolia, *Sw.* P. lanceolata, *Desf.* P. Alpini, *Desv.* P. obliqua, *Försk.* P. costata, *Bory.* P. æqualis, *Presl.* P. acuminatissimum, *Bl.* P. amplectans, *Wall.* P. Bahamensis, *Fée.*—Tropics and Northern Temperate Zone.
2. **P. Cretica,** *Linn.; Schk. Fil. t.* 90. P. serraria, *Sw.* P. pentaphylla, *Willd.*—Tropics and North Temperate Zone.

3. **P. heterodactyla,** *Reinw.; J. Sm. En. Fil. Philipp.* Pteris Cretica, *Blume.*—Malay Archipelago.
4. **P. umbrosa,** *R. Br.*—Australia.
5. **P. serrulata,** *Linn.; Schk. Fil. t.* 91.—Tropics.
6. **P. crenata,** *Sw.; Burm. Fl. Zey. t.* 87. P. multidentata, *Wall.* P. Chinensis, *Hort. Ang.*—Tropics.
7. **P. heterophylla,** *Linn.; Plum. Fil. t.* 37; *Hook. Bot. Mag. t.* 4925.—Jamaica.
8. **P. semipinnata,** *Linn.* P. flabellata, *Schk. Fil. t.* 93. P. demidiata, *Willd.*—East Indies, China, Malay Archipelago.
9. **P. pungens,** *Willd.; Plum. Fil. t.* 13.—Tropical America.
10. **P. felosma,** *J. Sm. En. Fil. Hort. Kew.* 1846.—Jamaica.
11. **P. sulcata,** *Link.*—Brazil.
12. **P. quadriaurita,** *Retz.*—East Indies.
13. **P. aspericaulis,** *Wall.*—East Indies.
14. **P. flabellata,** *Thunb.*—South Africa.
15. **P. arguta,** *Vahl.* P. biaurita, *Hook. et Grev. Ic. Fil. t.* 142, (*non Linn.*) P. allosora, *Link.* P. palustris, *Poir.* Monogonia palustris, *Presl.*—Madeira.
16. **P. Kingiana,** *Endl.*—Norfolk Island.
17. **P. tremula,** *R. Br.*—Australia, New Zealand.
18. **P. lata,** *Link.*—Brazil.
19. **P. laciniata,** *Willd.; Presl, Pterid. t.* 5. *f.* 23. ? Lonchitis hirsuta, *Linn.; Plum. Fil. t.* 20.—West Indies.

** *Vernation uniserial, distant, sarmentose.*

20. **P. scaberula,** *A. Rich.; Hook. Sp. Fil. t.* 93 *A.*—New Zealand.
21. **P. aquilina,** *Linn.; Eng. Bot. t.* 1679; *Lindl. and Moore's Brit. Ferns, t.* 44.—Tropical and Temperate Zones of both Hemispheres.

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55. LITOBROCHIA, *Presl; J. Sm.*

Vernation fasciculate and erect or decumbent, or uniserial and sarmentose. *Fronds* smooth, pinnate or bi-tripinnate, 1–8 feet high; ultimate pinnæ sinuose-lobed or pinnatifid. *Veins* external, elevated, the lower venules only anastomosing, or the whole uniform reticulated. *Sporangiferous receptacle* marginal, transversely continued in the axis of a linear, marginal indusium, constituting a linear, continuous or interrupted sorus.

* *Vernation fasciculate.*

1. **L. grandifolia,** *Presl.* Pteris grandifolia, *Linn.; Plum. Fil. t.* 105; *Schk. Fil. t.* 89.—Tropical America.
2. **L. denticulata,** *Presl.* Pteris denticulata, *Sw.; Hook. et Grev. Ic. Fil. t.* 28. Pteris Brasiliensis, *Radd. Fil. Bras. t.* 68 *bis.*—Brazil.
3. **L. leptophylla,** *J. Sm.* Pteris leptophylla, *Sw.* Pteris spinulosa, *Radd. Fil. Bras. t.* 70. Cheilanthes spinulosa, *Link, in Hort. Berol.*—Brazil.
4. **L. polita,** *J. Sm.* Pteris polita, *Link.*—Brazil.
5. **L. macroptera,** *J. Sm.* Pteris macroptera, *Link.*—Brazil.
6. **L. biaurita,** *J. Sm.* Pteris biaurita, *Linn.; Plum. Fil. t.* 15. Campteria biaurita, *Hook. Gen. Fil. t.* 65 *A.* Pteris nemoralis, *Willd.; Wall. in part.*—West Indies.
7. **L. tripartita,** *J. Sm.* Pteris tripartita, *Sw.* ? Pteris linearis, *Poir.* ? Pteris intermedia, *Blume.*—East Indies, Java.

** *Vernation uniserial, distant, sarmentose.*

8. **L. vespertilionis,** *Presl.* Pteris vespertilionis, *Labill. Nov. Holl. t.* 245.—Tropics and South Temperate Regions.

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56. LONCHITIS, *Linn.*

Vernation fasciculate, erect, subarboreous. *Fronds* bi-tripinnate, villose, 2–6 feet long, the ultimate pinnæ sinuose-pinnatifid. *Veins* costæform, pinnate; venules anastomosing, forming irregular, hexagonoid areoles. *Sporangia* produced on the apex of 4–5 venules, converging in the sinus of the laciniæ, forming an arcuate sorus in each sinus. *Indusium* linear, lunulate.

1. **L. aurita,** *Linn.; Plum. Fil. t.* 17.—Tropical America.

SECT. III. BLECHNEÆ.

Sori medial or costal, transversely elongated. *Indusium* plane or vaulted, rarely obsolete. *Fronds* uniform, or the fertile contracted and spiciform.

57. **BLECHNUM,** *Linn.; Presl.*

(Mesothema, *Presl.* Blechnopsis, *Presl.*)

Vernation fasciculate, erect; corm caudiciform or cæspitose. *Fronds* simple, pinnatifid, or pinnate, from a few inches to 4–6 feet high; pinnæ adherent or articulated with the rachis. *Veins* forked; the sterile free, or their apices thickened and forming a cartilaginous margin; the fertile combined near their base by a transverse, continuous, sporangiferous receptacle, constituting a linear, costal or sub-medial sorus. *Indusium* linear, plane.

* *Apices of the venules free.*

† *Sori costal.* (Blechnum, *Presl.*)

1. **B. Lanceola,** *Sw.; Lodd. Cab.* 1592; *Hook. Bot. Mag. t.* 3240; *Kunze, Fil. t.* 57. *f.* 1. B. lanceolatum, *Radd. Fil. Bras. t.* 60. *f.* 3.—Brazil.
2. **B. polypodioides,** *Radd. Fil. Bras. t.* 60. *f.* 2; *Kunze, Fil. t.* 58. *f.* 1.—Brazil.
3. **B. glandulosum,** *Link; Kaulf.* (*non Kunze*).—Brazil.
4. **B. cognatum,** *Presl.* B. glandulosum, *Kunze, Fil. t.* 58. *f.* 2.—Tropical America. triangulare!
5. **B. triangulatum,** *Link.*—Tropical America.
6. **B. occidentale,** *Linn.; Plum. Fil. t.* 62; *Jacq. Ic. Rar. t.* 644; *Hook. Gen. Fil. t.* 54.—Tropical America.
7. **B. gracile,** *Kaulf.; Lodd. Cab. t.* 1905.—Tropical America.
8. **B. longifolium,** *H. B. K.; Hook. Bot. Mag.* 2818.—Tropical America.

†† *Sori medial.* (Mesothema, *Presl.*)

9. **B. hastatum,** *Kaulf.* Lomaria hastata, *Kunze, Fil. t.* 95. *f.* 1.—Chili.

** *Apices of the venules thickened, forming a cartilaginous margin.* (Blechnopsis, *Presl.*)

† *Pinnæ adherent.*

10. **B. Brasiliense,** *Desv.* B. Corcovadense, *Radd. Fil. Bras. t.* 61.—Brazil.

11. **B. cartilagineum,** *Sw.; Metten. Fil. Hort. Leip. t.* 5.—Australia.
12. **B. orientale,** *Linn.; Schk. Fil. t.* 109.—East Indies, Malay Islands.

†† *Pinnæ articulated with the rachis.*

13. **B. serrulatum,** *Rich.; Schk. Fil. t.* 108. B. calophyllum, *Lang. et Fisch. Ic. Fil. t.* 23. B. angustifolium, *Willd.* B. striatum, *R. Br.* B. stagninum, *Radd. Fil. Bras. t.* 62.—Tropical America, Australia, Philippine Islands.

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58. DOODIA, *R. Br.*

Vernation fasciculate, erect. *Fronds* pinnatifid or subpinnate. *Veins* forked, the lower venules arcuately anastomosing and sporangiferous, constituting one, or sometimes two, transverse rows of oblong, straight or arcuate sori. *Indusium* plane.

1. **D. aspera,** *R. Br.; Hook. Exot. Fl. t.* 8; *Hook. Gen. Fil. t.* 54.—Australia.
2. **D. blechnoides,** *A. Cunn.; Metten. Fil. Hort. Leip. t.* 6. *f.* 3. D. maxima, *J. Sm. in Loud. Hort. Brit.*—Australia.
3. **D. lunulata,** *R. Br.; Herb. Brit. Mus.*—New Zealand.
4. **D. caudata,** *R. Br.; Hook. Exot. Fl. t.* 25. D. rupestris, *Kaulf.*—Australia.

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59. LOMARIA, *Willd.*

(Stegania, *R. Br.* Blechnum sp., *Auct.*)

Vernation fasciculate, erect; corm cæspitose or subarboreous. *Fronds* simple, pinnatifid, or pinnate, rarely bipinnatifid, 1–3 feet high, the fertile always contracted. *Veins* (of the sterile frond) forked; venules free, their apices usually clavate; fertile segments rachiform, veins obsolete, or more or less evident by their contiguity, forming a broad, transverse, continuous, sporangiferous receptacle, the sporangia becoming confluent over the whole disc of the segment. *Indusium* linear, sub-intramarginal, vaulted and revolute.

* *Fronds simple or pinnatifid.*

1. **L. Patersoni,** *Spreng.; Kunze, Fil. t.* 34.—Australia.
2. **L. lanceolata,** *Spreng.; Hook. Ic. Pl. t.* 429.—Australia, Tasmania, New Zealand, South America.
3. **L. attenuata,** *Link* (*? non Willd.*).—Brazil?
4. **L. L'Herminieri,** *Bory; Kunze, Fil. t.* 73.—Tropical America.
5. **L. nuda,** *Willd.* Onoclea nuda, *Labill. Nov. Holl. t.* 246.—Tasmania.
6. **L. discolor,** *Willd.* Hemionitis discolor, *Schk. Fil. t.* 6.—New Zealand.
7. **L. falcata,** *Spreng.*—Tasmania.
8. **L. alpina,** *Spreng.; Hook. fil. Fl. Antarct. t.* 150.—Tasmania, New Zealand, Magellan.
9. **L. Spicant,** *Desv.* Osmunda Spicant, *Linn.* Blechnum boreale, *Sm. Eng. Bot. t.* 1159; *Schk. Fil. t.* 110.—Europe, Madeira, North America.
10. **L. Banksii,** *Hook. fil. Fl. Nov. Zeal. t.* 76.—New Zealand.

** *Fronds pinnate.*

11. **L. australis,** *Link.* Blechnum australe, *Linn.; Schk. Fil. t.* 110 *B.* Lomaria pumila, *Kaulf.*—South Africa.
12. **L. punctulata,** *Kunze.* Blechnum punctulatum, *Sw.; Schlecht. Adumb. t.* 21, 22. *f.* 1. Lomaria densa, *Kaulf.*
13. **L. Gilliesii,** *Hook. et Grev. Ic. Fil. t.* 207.—Chili.
14. **L. minor,** *Spreng.*—Tasmania.
15. **L. procera,** *Spreng.; Hook. Ic. Pl. t.* 427, 428. Osmunda procera, *Forst.* Blechnum procerum, *Labill. Nov. Holl. t.* 247.—Australia, Tasmania, New Zealand, Polynesia.
16. **L. Capensis,** *Willd.; Schlecht. Adumb. t.* 18. Onoclea Capensis, *Linn.*—South Africa.
17. **L. striata,** *Willd.* L. tuberculata, *J. Sm. Cat. Fil. Hort. Kew.* (1856.)—Tropical America.
18. **L. Boryana,** *Willd.* Pteris osmundoides, *Bory, Itin.* 2. *t.* 32. L. Magellanica, *Desv.* L. robusta, *Carm.* L. zamiæfolia, *Gardn.* L. cinnamomea, *Kaulf.* L. setigera,

Gaud. L. obtusifolia, *Presl.* Blechnum (Lomaria) Boryana, *Schlecht. Adumb. t.* 19.—Bourbon, South Africa, Brazil, Tierra del Fuego.

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60. **BRAINEA,** *J. Sm.*

(Bowringia, *Hook., non Benth.*)

Vernation fasciculate, erect; corm arboreous, 3–4 feet high. *Fronds* pinnate, rarely sub-bipinnate, 1–2½ feet long; pinnæ linear-lanceolate, 4–6 inches long, subsessile, base truncate above, articulated below, margin crenate-serrulate. *Veins* flabellately forked, free exteriorly; the lower venules angularly anastomosing, forming a costal row of oblique, cuneiform areoles. *Sporangia* produced on the transverse anastomoses and bases of the free venules, constituting a broad, continuous or sub-interrupted, transverse, naked sorus.

1. **B. insignis,** *J. Sm. Cat. Fil. Hort. Kew.* (1856.) Bowringia insignis, *Hook. Journ. Bot. and Kew Miscell. v.* 5. *t.* 2.—Hongkong.

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61. **WOODWARDIA,** *Sw.*

Vernation fasciculate, decumbent. *Fronds* bipinnatifid, 4–6 feet long. *Veins* reticulated; the costal anastomoses transverse, elongated, and sporangiferous, constituting a costal row of oblong, linear, contiguous sori. *Sporangia* immersed. *Indusium* vaulted, revolute.

1. **W. radicans,** *Sw.; Schk. Fil. t.* 112; *Hook. Gen. Fil. t.* 17. Blechnum radicans, *Linn.* Woodwardia Stans, *Sw.* —South Europe, North India, Madeira, California.

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62. **ANCHISTEA,** *Presl.*

(Woodwardiæ sp., *Auct.*)

Vernation uniserial, sarmentum hypogæous. *Fronds* bipinnatifid, 1–2 feet high. *Veins* flabellately forked, free exteriorly; the lower venules transversely anastomosing and sporangiferous, forming a costal row of oblong, continuous sori. *Indusium* linear, plane.

1. **A. Virginica,** *Presl.* Blechnum Virginicum, *Linn.* Woodwardia Virginica, *Sw.*—North America.

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63. LORINSORIA, *Presl; Fée.*

(Woodwardiæ sp., *Auct.*)

Vernation uniserial, sarmentum hypogæous. *Fronds* distant, sinuose-pinnatifid or subpinnate, 1–1½ foot high, the fertile contracted. *Veins* of the sterile frond uniform reticulated; fertile segments rachiform, costal anastomoses transverse, elongated, sporangiferous, forming a costal row of linear, contiguous sori. *Indusium* vaulted, involute.

1. **L. areolata,** *Presl.* Acrostichum areolatum, *Linn.* Woodwardia angustifolia, *Sm.* Woodwardia onocleoides, *Willd.* W. Floridana, *Schk. Fil. t.* 111.—North America.

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64. STENOCHLÆNA, *J. Sm.*

(Acrostichi sp., *Auct.* Lomariobotrys, *Fée.*)

Vernation uniserial, distant; sarmentum elongated, scandent, smooth. *Fronds* of two forms, 2–3 feet long, the sterile pinnate, the fertile contracted, pinnate or bipinnate; pinnæ articulated with the rachis. *Veins* rising from an obscure, transverse vein continuous with and close to the costa; venules direct, their apices clavate, united, forming a pellucid, cartilaginous, spinulose margin; fertile segments linear, rachiform, margin membranaceous, revolute, indusiform. *Sporangiferous receptacle* linear, continuous; sporangia confluent.

1. **L. Meyeriana,** *J. Sm.* Lomaria Meyeriana, *Kunze.* Lomariobotrys Meyeriana, *Fée.* Stenochlæna tenuifolia, *T. Moore.* ? Lomaria tenuifolia, *Desv.* Stenochlæna scandens, *Hort.*—South Africa.

TRIBE IV. ASPLENIEÆ, *J. Sm.*

Sporangia produced on one or on both sides of the venules, forming oblong or linear sori, oblique to the midrib or axis of venation, furnished with a plane or vaulted lateral indusium.

65. ASPLENIUM, *Linn.*

Vernation fasciculate, erect or decumbent, rarely uniserial, sarmentose. *Fronds* varying from simple-entire to decompound, and from a few inches to 2–6 feet high, generally smooth. *Veins* rayed, forked, or pinnate; venules free, sporangiferous on the superior side. *Sori* simple, oblong or linear. *Indusium* plane or vaulted.

§ 1. ASPLENIUM VERUM.—*Indusium plane.*

1. **A. serratum,** *Linn.; Plum. Fil. t.* 104; *Schk. Fil. t.* 64.—Tropical America.
2. **A. crenulatum,** *Presl.* A. Nidus, *Radd. Fil. Bras. t.* 53 (*non Linn.*).—Tropical America.
3. **A. Hemionitis,** *Linn.* A. palmatum, *Lam.; Schk. Fil. t.* 66; *Lodd. Bot. Cab.* 868; *Hook. Bot. Mag. t.* 4911.—South Europe, North Africa, Madeira.
4. **A. angustifolium,** *Michx.; Schk. Fil. t.* 47 *et* 69.—North America.
5. **A. lucidum,** *Forst.; Schk. Fil. t.* 72; *Schlecht. Fil. t.* 14. A. heterodon, *Kunze; Metten. Fil. Hort. Leip. t.* 8. *f.* 1, 2; *? Blume.*—New Zealand.
6. **A. obtusatum,** *Forst.; Schk. Fil. t.* 68; *Labill. Nov. Holl. t.* 242. *f.* 2.—Tasmania, New Zealand.
7. **A. obliquum,** *Forst.; Schk. Fil. t.* 71; *Labill. Nov. Holl. t.* 242. *f.* 1.—Polynesia.
8. **A. oligophyllum,** *Kaulf.*—Brazil.
9. **A. compressum,** *Sw.* A. fœcundum, *Kunze.*—St. Helena.
10. **A. obtusifolium,** *Linn.; Plum. Fil. t.* 67; *Hook. et Grev. Ic. Fil. t.* 239.—West Indies.
11. **A. marinum,** *Linn.; Eng. Bot. t.* 392; *Schk. Fil. t.* 68;

Lindl. and Moore's Brit. Ferns, t. 38. A. lætum, *Hort.* —Europe, Madeira.

12. **A. macilentum,** *Kunze.*—Tropical America.
13. **A. pumilum,** *Sw.; Plum. Fil. t.* 66 *A.*—Tropical America.
14. **A. dentatum,** *Linn.; Plum. Fil. t.* 101. *f. C; Hook. et Grev. Ic. Fil. t.* 72.—West Indies.
15. **A. pulchellum,** *Radd. Fil. Bras. t.* 52.—Brazil.
16. **A. alatum,** *Humb.; Hook. et Grev. Ic. Fil. t.* 137.—Tropical America.
17. **A. Trichomanes,** *Linn.; Eng. Bot. t.* 576; *Schk. Fil. t.* 74; *Lindl. et Moore's Brit. Ferns, t.* 39*. A. anceps, *Soland.; Hook. et Grev. Ic. Fil. t.* 195. A. melanocaulon, *Willd.*—Europe, Madeira, South Africa, North India, Australia, North America.
18. **A. ebenum,** *Ait.* A. polypodioides, *Sw.; Schk. Fil. t.* 73; *Lodd. Bot. Cab. t.* 5.—North America.
19. **A. monanthemum,** *Linn.; Sm. Ic. ined. t.* 73; *Lodd. Bot. Cab. t.* 1700.—Tropical and Sub-tropical America, South Africa, Madeira.
20. **A. viride,** *Huds.; Schk. Fil. t.* 73; *Eng. Bot. t.* 2257; *Lindl. and Moore's Brit. Ferns, t.* 40*.—Europe, North India.
21. **A. formosum,** *Willd.*—Tropical America.
22. **A. Brasiliense,** *Radd. Fil. Bras. t.* 5. *f.* 1.—Tropical America.
23. **A. reclinatum,** *Moore.*—St. Helena.
24. **A. flabellifolium,** *Cav.; Sw. Syn. Fil. t.* 3. *f.* 2; *Lodd. Bot. Cab. t.* 1567; *Hook. Ex. Fl. t.* 208.—Australia, Tasmania.
25. **A. rhizophorum,** *Linn.; Sloan. Jam.* 1. *t.* 29, 30. *f.* 1. A. radicans, *Sw.* A. cyrtopteron, *Kunze.*—Venezuela and Jamaica.

§ 2. DAREÆ (Darea, *Willd.* Cænopteris, *Sw.*).—*Segments generally unisorous.*

26. **A. brachypteron,** *Kunze.*—Sierra Leone.
27. **A. fontanum,** *R. Br.; Lindl. and Moore's Brit. Ferns, t.*

35* *A.* Polypodium fontanum, *Linn.* Aspidium fontanum, *Sw.; Schk. Fil. t.* 53; *Eng. Bot. t.* 2024. Aspidium Halleri, *Willd.*—Europe, North India.

28. **A. cicutarium,** *Sw.; Plum. Fil. t.* 48 *A; Hook. Gen. Fil. t.* 6. Darea cicutaria, *Willd.*—Tropical America.

29. **A. rhizophyllum,** *J. Sm.* Cænopteris rhizophylla, *Sm. Ic. ined. t.* 50; *Hook. et Grev. Ic. Fil. t.* 193. Darea rhizophylla, *Willd.*—Tropical America.

30. **A. viviparum,** *Presl.* Cænopteris vivipara, *Sw.*—Mauritius.

31. **A. ~~furcatum,~~** *J. Sm.* Adiantum Borbonicum, *Jacq. Coll.* 3. *t.* 21. *f.* 1. Cænopteris furcata, *Sw.* Darea bifida, *Kaulf.*—Mauritius. /bifida see p.

32. **A. Belangeri,** *Kunze.*—Java.

33. **A. flaccidum,** *Forst.* Cænopteris flaccida, *Thunb.; Schk. Fil. t.* 82. Cænopteris Odontites, *Thunb.; Sw.* Cænopteris Novæ-Zelandiæ, *Schk. Fil. t.* 82. Cænopteris appendiculata, *Labill. Nov. Holl. t.* 243.—New Zealand, Tasmania.

34. **A. bulbiferum,** *Forst.; Schk. Fil. t.* 79; *Hook. Ic. Pl. t.* 423.—New Zealand.

§ 3. TARACHIÆ (Tarachia, *Presl*).

35. **A. attenuatum,** *R. Br.; Hook. et Grev. Ic. Fil. t.* 220.—Australia.

36. **A. serra,** *Lang. et Fisch. Ic. Fil. t.* 19.—Brazil.

37. **A. lineatum,** *Sw.*—Mauritius.

38. **A. falcatum,** *Lam.* Trichomanes falcatum, *Linn.; Burm. Fl. Zey. t.* 43.—Tropics.

39. **A. polyodon,** *Forst.*—New Zealand.

40. **A. caudatum,** *Forst.; Schk. Fil. t.* 77.—Polynesia.

41. **A. macrophyllum,** *Sw.*—Mauritius.

42. **A. zamiæfolium,** *Willd.; Lodd. Bot. Cab. t.* 852; *Kunze, Fil. t.* 48.—Venezuela.

43. **A. præmorsum,** *Sw.* A. cuneatum, *Hook. et Grev. Ic. Fil. t.* 189. A. Canariense, *Willd.*—Mauritius, Tropical America, Madeira.

44. **A. furcatum,** *Sw.; Schk. Fil. t.* 79.—South Africa, India, Madeira.

45. **A. cuneatum,** *Sw.; Sloan. Jam.* i. *t.* 46. *f.* 2; *Schk. Fil. t.* 78.—Jamaica.

46. **A. nitidum,** *Sw.; Schk. Fil. t.* 81.—South Africa, East Indies.

47. **A. laserpitiifolium,** *Willd.*—Malay Islands.

48. **A. septentrionale,** *Sw.; Schk. Fil. t.* 65; *Eng. Bot. t.* 1017; *Lindl. and Moore's Brit. Ferns, t.* 41 *C.* Acrostichum septentrionale, *Linn.* Acropteris septentrionale, *Link* (1833). Amesium septentrionale, *Newm.*—Europe, North India.

49. **A. alternifolium,** *Wulf; Jacq. Misc.* ii. *t.* 5. *f.* 2; *Eng. Bot. t.* 2258. A. Germanicum, *Weiss.* A. Breynii, *Schk. Fil. t.* 81.—Europe.

50. **A. Ruta-muraria,** *Linn.; Schk. Fil. t.* 80 *B; Eng. Bot. t.* 150; *Hook. Gen. Fil. t.* 30; *Lindl. and Moore's Brit. Ferns, t.* 41 *A.*—Europe, North India.

51. **A. Adiantum-nigrum,** *Linn.; Schk. Fil. t.* 80; *Eng. Bot. t.* 1950; *Lindl. and Moore's Brit. Ferns, t.* 36.—Europe, South Africa, Madeira, North India.

52. **A. lanceolatum,** *Huds.; Eng. Bot. t.* 240; *Lindl. and Moore's Brit. Ferns, t.* 35* *B.*—Europe.

53. **A. acutum,** *Willd.; Lindl. and Moore's Brit. Ferns, t.* 37*. A. productum, *Lowe.*—South Europe, Madeira.

54. **A. fragrans,** *Sw., non Hook.; Schk. Fil. t.* 130 *B.*—Jamaica.

55. **A. fœniculaceum,** *H. et B.; Hook. et Grev. Ic. Fil. t.* 92. Asplenium Mexicanum, *Mart. et Gal. Fil. Mex. t.* 15. *f.* 4.—Mexico.

56. **A. auritum,** *Sw.; Schk. Fil. t.* 130 *B.*—Tropical America.

57. **A. dispersum,** *Kunze; Metten. Fil. Hort. Leip. t.* 9. *f.* 5, 6.—Tropical America.

§ 4. ATHYRIEÆ (Athyrium, *Roth*).—*Indusium vaulted.*

58. **A. Filix-fœmina,** *Bernh.* Polypodium Filix-fœmina, *Linn.*

Aspidium Filix-fœmina, *Sw.; Schk. Fil. t.* 58, 59; *Eng. Bot. t.* 282; *Lindl. and Moore's Brit. Ferns, t.* 30 *A.*

59. **A. Michauxii,** *Spreng.* Nephrodium Filix-fœmina, *Michx.* Aspidium angustum, *Willd.*—North America.

60. **A. denticulatum,** *J. Sm.* Allantodia denticulata, *Wall.* Asplenium setulosum, *Hort.*—Nepal.

61. **A. macrocarpum,** *Blume in Herb.*—Java and Ceylon.

62. **A. umbrosum,** *J. Sm.* Polypodium umbrosum, *Ait.* Aspidium umbrosum, *Sw.; Schk. Fil. t.* 61. Allantodia umbrosa, *R. Br.*—Madeira.

63. **A. axillare,** *J. Sm.* Polypodium axillare, *Ait.* Aspidium axillare, *Sw.* Allantodia axillaris, *Kaulf.*—Madeira.

64. **A. Brownii,** *J. Sm.; Hook. Ic. Pl. t.* 978. Allantodia Australis, *R. Br.* Athyrium Australe, *Presl; Hook. Gen. Fil. t.* 16.—Australia.

65. **A. eburneum,** *J. Sm.* Aspidium eburneum, *Wall. Cat.* 389. Lastrea eburnea, *Cat. Hort. Kew.* 1856. Polypodium oxyphyllum, *Wall. Cat.* 324.—Nepal.

66. **A. decurtatum,** *Link; Metten. Fil. Hort. Leip. t.* 13. *f.* 17, 18.—Brazil.

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66. **DIPLAZIUM,** *Sw.*

(Asplenii sp., *Linn. et Auct.*)

Vernation fasciculate, erect or decumbent. *Fronds* simple, pinnate or bi-tripinnate, 1–5 feet high. *Veins* forked or pinnate; venules free, sporangiferous on both sides, constituting binate, linear sori. *Indusium* plane.

* *Vernation erect.*

1. **D. plantagineum,** *Sw.; Schk. Fil. t.* 85; *Lodd. Bot. Cab.* 1588. Asplenium plantagineum, *Linn.* Diplazium acuminatum, *Radd. Bras. Fil. t.* 57. *f.* 2.—Tropical America.

2. **D. grandifolium,** *Sw.*—Tropical America.

3. **D. integrifolium,** *Blume.* D. alternifolium, *Blume.*—Java.

4. **D. celtidifolium,** *Kunze.*—Venezuela.

5. **D. ambiguum,** *J. Sm.* Asplenium ambiguum, *Radd. Bras.*

Fil. t. 54, 54 *bis.* D. coarctatum, *Link.* D. dubium, *Hort.* Asplenium Shepherdii, *Hort.; ? Spreng.*—Tropical America.

6. **D. striatum,** *Presl.* Asplenium striatum, *Linn.; Plum. Fil. t.* 18, 19. D. subulatum, *Hort.*—Tropical America.
7. **D. brevisorum,** *J. Sm.*—Jamaica.

** *Vernation decumbent.*

8. **D. arborescens,** *Link; J. Sm. Cat. Fil. Hort. Kew.* 1856; (? *Sw.*)—St. Helena.
9. **D. sylvaticum,** *Sw.; Schk. Fil. t.* 75 *B.* Callipteris sylvatica, *Bory.*—East Indies.
10. **D. acuminatum,** *Presl.* Asplenium acuminatum, *Wall.*—East Indies.
11. **D. decussatum,** *J. Sm.* Asplenium decussatum, *Wall.* D. Lasiopteris, *Link.*—East Indies.
12. **D. thelyptroides,** *Presl.* Asplenium thelyptroides, *Michx.; Schk. Fil. t.* 74 *B.*—North America.

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67. SCOLOPENDRIUM, *Sm.*

Vernation fasciculate, erect. *Fronds* simple entire, lobed, or pinnate; frequently abnormal and plane, undulate, or with a comose, crested apex; from 6 inches to 2–3 feet long. *Veins* forked; venules free, the superior and inferior branch of each fascicle contiguous, parallel, and sporangiferous on their proximate sides, constituting two linear, confluent sori, each furnished with a linear indusium, the free margins of which connive.

1. **S. vulgare,** *Sm.; Eng. Bot. t.* 1150; *Lindl. and Moore's Brit. Ferns, t.* 42. S. officinarum, *Sw.; Schk. Fil. t.* 83. Asplenium Scolopendrium, *Linn.*—Europe, Madeira.
    - a. **polyschides,** *Lindl. and Moore, l. c. t.* 42. *f.* 2.
    - b. **cornutum,** *Lindl. and Moore, l. c.*
    - c. **marginatum,** *Lindl. and Moore, l. c. t.* 42. *f.* 3.
    - d. **crispum,** *Lindl. and Moore, l. c. t.* 42. *f.* 4.
    - e. **multifidum,** *Lindl. and Moore, l. c.*
    - f. **laceratum,** *Lindl. and Moore, l. c. t.* 42. *f.* 10.

2. **S. Krebsii,** *Kunze, Fil. t.* 74.—Natal.

68. ANTIGRAMMA, *Presl; J. Sm.*

(Asplenii sp., *Auct.* Camptosorus, *Link; Presl.*)

Vernation fasciculate, erect. *Fronds* simple, cordate-lanceolate or sinuose-pinnatifid, 4–18 inches high. *Veins* forked; venules angularly anastomosing, reticulated, the marginal veinlets free. *Sporangia* produced on the proximate sides of the primary venules of each fascicle, constituting two linear, confluent sori, each furnished with a linear indusium, the free margins of which connive.

1. **A. rhizophylla,** *J. Sm.* Asplenium rhizophyllum, *Linn.* Camptosorus rhizophyllus, *Link; Hook. Gen. Fil. t.* 57 *C.* —North America.

69. NEOTTOPTERIS, *J. Sm.*

(Asplenii sp., *Linn. et Auct.* Thamnopteris, *Presl, Ep. Bot.*)

Vernation fasciculate, erect. *Fronds* simple, linear or broad elliptical-lanceolate, smooth, 1–4 feet long by 2–8 inches wide. *Veins* forked; venules parallel, sporangiferous on their superior side, their apices combined by a transverse, continuous, marginal vein. *Sori* unilateral, indusium plane.

1. **N. Nidus,** *J. Sm.;** *Hook. Gen. Fil. t.* 113. Asplenium Nidus, *Linn.; Bot. Mag. t.* 3101.—East Indies.
2. **N. Australasica,** *J. Sm.* *Fronds* 2–3 feet long, broad elliptical-lanceolate; base attenuated, sessile; costa prominent, acute below.—Australia.
3. **N. stipitata,** *J. Sm.* *Fronds* 1–1½ feet long, 2 inches wide, stipitate.—East Indies.

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* This species is distinguished by the costa being obtuse-rounded below.

70. HEMIDICTYUM, *Presl.*

(Asplenii sp., *Linn.*)

Vernation fasciculate, erect. *Fronds* pinnate, 10–14 feet long; pinnæ 1–2 feet long, 3–5 inches wide. *Veins* forked; venules parallel till near the margin, then anastomosing and reticulated, combined by a transverse, continuous, marginal vein. *Sporangia* produced on the superior side of the parallel veins, constituting unilateral, linear sori. *Indusium* plane.

1. **H. marginatum,** *Presl; Hook. Gen. Fil. t.* 55 *A.* Asplenium marginatum, *Linn.; Plum. Fil. t.* 106.—Tropical America.

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71. CALLIPTERIS, *Bory; J. Sm.*

(Asplenii *et* Diplazii sp., *Auct.* Anisogonium, *Presl.* Digrammaria, *Presl.* Microstegia, *Presl.*)

Vernation fasciculate, erect. *Fronds* pinnate, bipinnatifid, or bipinnate, 2–5 feet high. *Veins* costæform, pinnate; the whole, or the lower venules only, anastomosing, sporangiferous on both sides, constituting binate, linear, decussate sori. *Indusium* plane.

1. **C. prolifera,** *Bory.* Asplenium proliferum, *Lam.* Diplazium proliferum, *Kaulf.* Asplenium decussatum, *Sw.* Anisogonium decussatum, *Presl; Hook. Gen. Fil. t.* 56 *A.*—East Indies, Malay Archipelago.
2. **C. Malabarica,** *J. Sm.* Diplazium Malabaricum, *Spreng.* Asplenium dubium, *Sw.; Schk. Fil. t.* 75 *B* (*Rheede, Mal.* 12. *t.* 15). Digrammaria ambigua, *Presl; Hook. Gen. Fil. t.* 56 *C.* Microstegia ambigua, *Presl, Epim. Bot.* Diplazium esculentum, *Sw.* Anisogonium esculentum, *Presl.* Microstegia esculenta, *Presl, Epim. Bot.* Digrammaria esculenta, *Fée.* Diplazium Seramporense, *Spreng.* Anisogonium Seramporense, *Presl.* Callipteris Seramporense, *Fée.* Diplazium pubescens, *Link.*—East Indies, Malayan Archipelago.

72. **CETERACH,** *Willd.; J. Sm.*

(Asplenii sp., *Linn.* Grammitis, *Sw.*)

Vernation fasciculate, erect, cæspitose. *Fronds* 2–12 inches long, sinuose-pinnatifid or pinnate, the under side densely squamose. *Veins* forked, anastomosing. *Sporangia* unilateral, protruding through the dense squamæ, forming oblong sori. *Indusium* obsolete.

1. **C. officinarum,** *Willd.; Hook. Gen. Fil. t.* 113; *Lindl. and Moore's Brit. Ferns, t.* 43 *A.* Asplenium Ceterach, *Linn.* Grammitis Ceterach, *Sw.; Schk. Fil. t.* 7 *B; Lodd. Bot. Cab. t.* 15. Scolopendrium Ceterach, *Eng. Bot.* 1244.—Europe, North India.

TRIBE V. **ASPIDIEÆ,** *J. Sm.*

Sori round, rarely oblong, intramarginal, furnished with an orbicular, reniform, cucullate, or calyciform indusium.

73. **HYPODERRIS,** *R. Br.*

Vernation uniserial, subsarmentose. *Fronds* simple entire or trilobed. *Primary veins* costæform; venules compound anastomosing. *Sporangia* compital, included within a calyciform, obscure, membranous indusium. *Sori* round, irregular or oblique, biserial, between the primary veins.

1. **H. Brownii,** *J. Sm.; Hook. Gen. Fil. t.* 1. Woodsia Brownii, *Metten.*—Trinidad and Guiana.

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74. **ASPIDIUM,** *Sw. (in part); Schott.*

(Sagenia, *Presl.* Bathium, *Fée.*)

Vernation fasciculate, erect. *Fronds* 1–4 feet high, simple entire or lobed, pinnate, bipinnatifid, or bipinnate. *Veins* costæform; venules compound anastomosing. *Sporangia* compital, or on the apex of free veinlets terminating in the areoles. *Sori* round. *Indusium* orbicular or reniform.

1. **A. trifoliatum,** *Sw.; Schk. Fil. t.* 28; *Hook. Gen. Fil. t.* 38; *Schott, Gen. Fil. t.* 13. Polypodium trifoliatum, *Linn. fide specimen in Linn. Herb.; Jacq. Ic. Rar. t.* 638. Bathium trifoliatum, *Fée.* Aspidium heracleifolium, *Willd.; Plum. Fil. t.* 147.—Tropical America.
2. **A. ebenum,** *J. Sm.* Bathium ebenum, *Fée.*—Mauritius.
3. **A. macrophyllum,** *Sw.; Plum. Fil. t.* 145. Cardiochlæna macrophylla, *Fée.*—Tropical America.
4. **A. decurrens,** *Presl.*—Ceylon.
5. **A. repandum,** *Willd.* Bathium repandum, *Fée.* Aspidium platyphyllum, *J. Sm. En. Fil. Philipp.; Metten. Fil. Hort. Leip. t.* 21.—Malay Islands.
6. **A. coadunatum,** *Wall.; Hook. et Grev. Ic. Fil. t.* 202. Sagenia coadunata, *J. Sm. Gen. Fil.*—East Indies.
7. **A. cicutarium,** *Sw.* Polypodium cicutarium, *Linn. fide specim. Linn. Herb.* Aspidium hippocrepis, *Sw.; Plum. Fil. t.* 150. Polypodium hippocrepis, *Jacq. Ic. Rar. t.* 641. Sagenia hippocrepis, *Presl.*—Jamaica.
8. **A. apiifolium,** *Schk. Fil. t.* 56 *B.* Sagenia apiifolia, *Fée.* Microbrochis apiifolia, *Presl.* Aspidium sinuatum, *Gaud.; Labill. Sert. Aust. Nov. Caled. t.* 1. Bathium Billardieri, *Fée.*—Sandwich Islands.

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75. **ONOCLEA,** *L.*

Vernation uniserial, distant; sarmentum hypogæous. *Sterile fronds* subbipinnatifid; veins reticulated. *Fertile fronds* bipinnate; veins free; pinnules contracted, sessile; margins conniving, forming unilateral spikes (pinnæ) of globose, bacciform segments, each compactly filled with sporangia, which rise from four to six punctiform, medial receptacles. *Special indusium* lateral, very membranous.

1. **O. sensibilis,** *L.; Schk. Fil. t.* 102; *Hook. Gen. Fil. t.* 82. —North America.

Cincinalis Chrysophila
ight Verdigris green above.
ull yellow beneath
small roundish Pinnules

76. **CYCLODIUM,** *Presl.*

(Aspidii sp., *Kaulf.*)

Vernation fasciculate, subdecumbent. *Fronds* pinnate, 2–3 feet high; sterile pinnæ broad-elliptical; veins pinnately forked; venules acutely anastomosing, producing from their angular junctions an excurrent, free or anastomosing veinlet; fertile pinnæ contracted, linear-lanceolate; veins uniform, reticulated. *Sporangiferous receptacles* medial. *Sori* round, confluent, occupying the whole under surface. *Indusium* orbicular.

1. **C. confertum,** *Presl.* Aspidium confertum, *Kaulf.; Hook. et Grev. Ic. Fil. t.* 121; *Hook. Gen. Fil. t.* 49 *B.*—Guiana.

77. **CYRTOMIUM,** *Presl.*

(Phanerophlebia, *Presl.*)

Vernation fasciculate, erect. *Fronds* 1–3 feet high, pinnate, pinnæ broad elliptical-lanceolate, entire or auriculate at the base. *Veins* two or three times forked, or pinnate; venules alternate, the lower exterior branch free, the others acutely anastomosing, producing from their junctions free or anastomosing veinlets, sporangiferous on or below their apices or points of junction. *Sori* round, transversely uniserial, or numerous and oblique-serial. *Indusium* orbicular.

1. **C. falcatum,** *Presl.* Polypodium falcatum, *Linn.; Thunb. Fl. Jap. t.* 35. Aspidium falcatum, *Lang. et Fisch. t.* 15. —Japan, China.

78. **FADYENIA,** *Hook.*

Vernation fasciculate, erect, corm undefined. *Fronds* simple entire, 5–6 inches long; the sterile lanceolate, attenuated and proliferous at the apex; the fertile linear, ligulate, obtuse, erect. *Veins* forked; venules acutely anastomosing; the lower exterior venule of each fascicle free, and sporangiferous on its apex. *Sori* round, transversely uniserial. *Indusium* reniform, sub-oblong.

1. **F. prolifera,** *Hook. Gen. Fil. t.* 53 *B.* Aspidium proliferum, *Hook. et Grev. Ic. Fil. t.* 96.—Jamaica.

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79. **NEPHRODIUM,** *Schott.*

Vernation fasciculate, decumbent or erect, rarely uniserial and sarmentose. *Fronds* 1–6 feet high, simple or pinnate; pinnæ entire, sinuose or pinnatifid. *Veins* costæform, pinnate; the lower pair of venules only, or more, or the whole, angularly anastomosing, producing from their junction an excurrent, anastomosing, sterile veinlet. *Sporangia* medial or sub-terminal. *Sori* round. *Indusium* reniform, rarely nearly orbicular.

1. **N. unitum,** *R. Br.* Aspidium unitum, *Schk. Fil. t.* 33 *B.*—Tropics.
2. **N. pteroides,** *J. Sm.* Polypodium pteroides, *Retz.* Aspidium pteroides, *Sw.* Aspidium terminans, *Wall.* Nephrodium terminans, *J. Sm. Cat. Fil. Hort. Kew.* 1856.—East Indies.
3. **N. molle,** *R. Br.; Schott, Gen. Fil. t.* 14; *Hook. Gen. Fil. t.* 48 *B.*—Tropics, very general.
4. **N. venustum,** *R. Hew.*—Jamaica.
5. **N. articulatum,** *J. Sm.*—Ceylon.
6. **N. Hookeri,** *J. Sm.* Aspidium Hookeri, *Wall.*—East Indies.
7. **N. patens,** *J. Sm.*—Demerara.
8. **N. truncatum,** *J. Sm.* Aspidium truncatum, *Gaud. in Freycinet's Voy. t.* 10.—Sandwich Islands.

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80. **MESOCHLÆNA,** *R. Br.*

(Sphærostephanos, *J. Sm.*)

Vernation fasciculate, erect. *Fronds* 2–4 feet high, bipinnatifid. *Veins* costæform, pinnate; the lower pair of venules anastomosing, the others free, parallel. *Sporangiferous receptacles* medial, elongated. *Sori* oblong-linear, decussate. *Indusium* linear, attached longitudinally on the centre of the receptacle, having sporangia in its axis on each side; margins free.

1. **M. Javanica,** *R. Br. in Horsf. Fl. Jav.* Sphærostephanos asplenioides, *J. Sm. in Hook. Gen. Fil. t.* 24; *Kunze, Fil. t.* 10, 11.—Singapore and Java.

81. WOODSIA, *R. Br.*

Vernation fasciculate, erect, cæspitose. *Fronds* bi-tripinnatifid, 1–12 inches high, smooth or squamiferous. *Veins* simple or forked, free, the lower exterior branch sporangiferous on or below its apex. *Sori* round. *Indusium* calyciform, nearly entire or deeply laciniated, the laciniæ usually terminating in long hairs, which involve the sporangia.

1. **W. Ilvensis,** *R. Br.* Acrostichum Ilvense, *Linn.* Polypodium Ilvense, *Sw.; Schk. Fil. t.* 19.—Europe.
2. **W. hyperborea,** *R. Br.; Trans. Linn. Soc. v.* xi. *t.* 11; *Hook. Gen. Fil. t.* 119. Polypodium hyperboreum, *Sw.* —Europe.
3. **W. obtusa,** *Hook.* Polypodium obtusum, *Sw.; Schk. Fil. t.* 21. Woodsia Perriniana, *Hook. et Grev. Ic. Fil. t.* 68. —North America.
4. **W. mollis,** *J. Sm.* Physematium molle, *Kunze, Anal. Pterid. t.* 27.—Mexico.

82. CYSTOPTERIS, *Bernh.*

Vernation fasciculate, decumbent or sub-erect. *Fronds* slender, bi-tripinnatifid, 4–15 inches high. *Veins* forked; venules free. *Sporangiferous receptacles* punctiform, medial. *Sori* round. *Indusium* lateral, oblong or reniform, cucullate, dentate or fimbriate.

1. **C. tenuis,** *Schott.* Aspidium tenue, *Sw.; Schk. Fil. t.* 53 *B.* Aspidium atomarium, *Mühl.; Willd.*—North America.
2. **C. bulbifera,** *Bernh.* Aspidium bulbiferum, *Sw.; Schk. Fil. t.* 57.—North America.
3. **C. fragilis,** *Bernh.* Polypodium fragilis, *Linn.* Aspidium fragilis, *Sw.; Schk. Fil. t.* 54; *Eng. Bot. t.* 1587; *Lindl.*

and Moore's Brit. Ferns, t. 46 *A. f.* 1–7. *Var.* Dickeana, *Moore; Sowerby's Ferns of Great Britain, t.* 22.—Europe.

4. **C. regia,** *Presl.* Polypodium regium, *Linn.* Cystea regia, *Sm.* Aspidium regium, *Sw.* Cyathea incisa, *Sm.; Eng. Bot. t.* 163. Polypodium alpinum, *Jacq. Ic. Rar. t.* 642. Aspidium alpinum, *Sw.; Schk. Fil. t.* 62. Cystopteris alpina, *Desv.; Lindl. and Moore's Brit. Ferns, t.* 46 *B.*—South of Europe.
5. **C. montana,** *Link; Lindl. and Moore's Brit. Ferns, t.* 46 *C. f.* 1–3. Aspidium montanum, *Sw.; Schk. Fil. t.* 63.—Europe.

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83. LASTREA, *Presl; J. Sm.*

(Aspidii sp., *Auct.*)

Vernation uniserial, or fasciculate and erect or decumbent. *Fronds* varying from bipinnatifid to decompound-multifid, 1–6 feet high. *Veins* simple or once or several times forked; venules free. *Sporangia* terminal or medial. *Sori* round. *Indusium* reniform.

* *Vernation uniserial, sarmentose.* (Thelypteris.)

† *Fronds lanceolate, bipinnatifid.*

1. **L. palustris,** *J. Sm.* Thelypteris palustris, *Schott.* Lastrea Thelypteris, *Presl; Lindl. and Moore's Brit. Ferns, t.* 29. Polypodium Thelypteris, *Linn.* Aspidium Thelypteris, *Sw.; Schk. Fil. t.* 52; *Eng. Bot. t.* 1018.—Europe.
2. **L. Noveboracensis,** *Presl.* Polypodium Noveboracense, *Linn.; Schk. Fil. t.* 46.—North America.
3. **L. invisa,** *Presl.* Aspidium invisum, *Sw.; Schk. Fil. t.* 18.—West Indies.
4. **L. augescens,** *J. Sm.* Aspidium augescens, *Link; Kunze, Fil. t.* 59. Nephrodium Ottonianum, *Kunze.*—Tropical America.

†† *Fronds deltoid, decompound.*

5. **L. decomposita,** *J. Sm.* Nephrodium decompositum, *R.*

Br.; Hook. fil. Fl. Nov. Zel. t. 79 *(exclus. name).*—Australia, Tasmania, and New Zealand.

6. **L. pubescens,** *Presl.* Polypodium pubescens, *Linn.* Nephrodium pubescens, *Hook. et Grev. Ic. Fil. t.* 62.—Jamaica.
7. **L. quinquangulare,** *J. Sm.* Aspidium quinquangulare, *Kunze.*—West Africa.
8. **L. recedens,** *J. Sm.* Polypodium recedens, *J. Sm. En. Fil. Phil.*—Ceylon and Philippine Islands.
9. **L. elegans,** *Moore et Houlst. En. of Cult. Ferns.*—Ceylon.

** *Vernation fasciculate, erect or subdecumbent.*

† *Fronds bipinnatifid; veins simple.* (Oreopteris.)

10. **L. montana,** *T. Moore.* Polypodium montanum, *Vogler.* Polystichum montanum, *Roth.* Polypodium Oreopteris, *Ehrhart; Eng. Bot. t.* 1019. Aspidium Oreopteris, *Sw.; Schk. Fil. t.* 35, 36. Lastrea Oreopteris, *Presl; Lindl. and Moore's Brit. Ferns, t.* 28.—Europe.
11. **L. patens,** *Presl.* Aspidium patens, *Sw.*—Tropical America.
12. **L. cana,** *J. Sm.* Aspidium canum, *Wall.* Nephrodium pubescens, *D. Don (non Sw.).*—East Indies.
13. **L. strigosa,** *Presl.* Aspidium strigosum, *Willd.* Aspidium crinitum, *Sieb.; Hook. et Grev. Ic. Fil. t.* 66.—Mauritius.
14. **L. similis,** *J. Sm. En. Fil. Phil. (n.* 390, *Cuming).* Aspidium submarginale, *Hort. Berol.*—Malacca.
15. **L. Kaulfussii,** *Presl.* Aspidium Kaulfussii, *Link.*—Brazil.
16. **L. chrysoloba,** *Presl.* Aspidium chrysolobum, *Link.*—Brazil.
17. **L. decurrens,** *J. Sm.* Aspidium decursive-pinnatum, *Kunze.*—China.

†† *Fronds pinnate, bipinnatifid, or decompound; veins forked, generally immersed.*

18. **L. podophylla,** *J. Sm.* Aspidium (Lastrea) podophyllum, *Hook. in Journ. Bot. and Kew Misc. v.* 5. *t.* 1. Aspidium Sieboldi, *Van Houtte, Cat.; Metten, Fil. Hort. Leip. t.* 20.

f. 1–4. Pycnopteris Sieboldi, *T. Moore.*—Japan and Hongkong.

19. **L. Filix-mas,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 14. Polypodium Filix-mas, *Sw. Schk. Fil. t.* 44; *Eng. Bot.* 1458, 1949. *Var.* paleacea, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 17 *B.* Aspidium paleaceum, *D. Don.* Nephrodium affine, *Lowe. Var.* incisa, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 15 *A, B.* Aspidium affine, *Fisch. et Meyer. Var.* pumila, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 17 *A. Var.* cristata, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 16 *A.*—Temperate regions of the earth generally.

20. **L. rigida,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 18. Aspidium rigidum, *Sw.; Schk. Fil. t.* 38; *Eng. Bot. t.* 38.—Europe.

21. **L. elongata,** *Presl.* Polypodium elongatum, *Ait.* Aspidium elongatum, *Sw.; Hook. et Grev. Ic. Fil. t.* 234.—Madeira.

22. **L. marginalis,** *Presl.* Aspidium marginalis, *Sw.*—North America.

23. **L. Goldiana,** *Presl.* Nephrodium Goldianum, *Hook. et Grev. Ic. Fil. t.* 102.—North America.

24. **L. cristata,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 19. Polypodium cristatum, *Linn.* Aspidium cristatum, *Sw.; Schk. Fil. t.* 37. *Var.* uliginosa, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 20. *Var.* Lancastriense, *J. Sm.* Aspidium Lancastriense, *Sw.; Schk. Fil. t.* 41.—Europe and North America.

25. **L. intermedia,** *Presl.* Aspidium intermedium, *Willd.*—North America.

26. **L. spinulosa,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 21. Aspidium spinulosum, *Sw.; Schk. Fil. t.* 48.—Europe.

27. **L. æmula,** *J. Sm.* Polypodium æmulum, *Ait.* Aspidium æmulum, *Sw.* Lastrea Fœnisecii, *Watson; Lindl. and Moore's Brit. Ferns, t.* 27. Nephrodium Fœnisecii, *Lowe.*

Lastrea recurva, *Newm.* Lastrea concava, *Newm.*—Europe and Madeira.

28. **L. dilatata,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 22. Aspidium dilatatum, *Sm.; Eng. Bot. t.* 1460. *Var.* tanacetifolia, *T. Moore.* Aspidium spinulosum, *Schk. Fil. t.* 47. Aspidium erosum, *Schk. Fil. t.* 45. *Var.* glandulosa, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 23. *Var.* dumetorum, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 25. Aspidium dumetorum, *Sm. Var.* collina, *T. Moore; Lindl. and Moore's Brit. Ferns, t.* 26.—Europe, North America, and North-East Asia.

29. **L. atro-virens,** *J. Sm.*—*Vernation* erect, cæspitose. *Fronds* stipitate, deltoid-lanceolate, bipinnate, 10–15 inches high; pinnæ lanceolate-acuminate, pinnate below, pinnatifid-decurrent above; pinnules oblique-deltoid, sessile, lobed, serrate, serratures mucronate; rachis pilose; the chief pinnules bearing five to six sori. (Allied to *L. glabella* and *hirta.*)—Native country unknown.

30. **L. glabella,** *J. Sm.* Nephrodium glabellum, *A. Cunn.*—New Zealand.

31. **L. hirta,** *Presl.* Aspidium hirtum, *Sw.; Schk. Fil. t.* 46. —Jamaica.

32. **L. villosa,** *Presl.* Polypodium villosum, *Sw.; Plum. Fil. t.* 27. Aspidium villosum, *Sw.; Schk. Fil. t.* 46.—West Indies.

84. **POLYSTICHUM,** *Roth, in part; Schott; Presl.*

(Aspidii sp., *Sw.*)

Vernation fasciculate and erect, or uniserial and subsarmentose. *Fronds* pinnate, bi-tripinnate, or decompound; pinnæ and pinnules auriculated and lobed, dentate, rigid, spinulose, mucronate. *Veins* simply or pinnately forked; venules free, the lower exterior branch or more (of each fascicle) sporangiferous on or generally below its apex. *Sori* round. *Indusium* orbicular or subreniform.

* *Vernation erect.*

1. **P. acrostichoides,** *Schott.* Aspidium acrostichoides, *Sw.* Aspidium auriculatum, *Schk. Fil. t.* 30.—North America.
2. **P. falcinellum,** *Presl.* Aspidium falcinellum, *Sw.*—Madeira.
3. **P. mucronatum,** *Presl.* Aspidium mucronatum, *Sw.; Schk. Fil. t.* 29 *B, C.*—Jamaica.
4. **P. Lonchitis,** *Roth; Schott, Gen. Fil. t.* 9; *Lindl. and Moore's Brit. Ferns, t.* 9. Polypodium Lonchitis, *Linn.; Eng. Bot. t.* 797. Aspidium Lonchitis, *Sw.; Schk. Fil. t.* 29.—Europe.
5. **P. aculeatum,** *Roth; Lindl. and Moore's Brit. Ferns, t.* 10, 11. Polypodium aculeatum, *Linn.* Aspidium aculeatum, *Sw.; Schk. Fil. t.* 39.—Temperate Regions of the Northern Hemisphere.
6. **P. lobatum,** *Presl; Hook. Gen. Fil. t.* 48 *C.* Polypodium lobatum, *Huds.* Aspidium lobatum, *Sw.; Schk. Fil. t.* 40.—Europe.
7. **P. angulare,** *Presl; Lindl. and Moore's Brit. Ferns, t.* 12, 13. Aspidium angulare, *Willd.; Eng. Bot. t.* 2776.—Europe.
8. **P. proliferum,** *Presl.* Aspidium proliferum, *R. Br.; Hook. et Grev. Ic. Fil. t.* 96.—Tasmania.
9. **P. vestitum,** *Presl.* Polypodium vestitum, *Forst.* Aspidium vestitum, *Sw.; Schk. Fil. t.* 43.—New Zealand.
10. **P. pungens,** *Presl.* Aspidium pungens, *Kaulf.; Schlecht. Fil. t.* 10.—South Africa.

** *Vernation uniserial, sarmentose.*

11. **P. coriaceum,** *Roth.* Aspidium coriaceum, *Sw.* (*excl. syn. Forst.*); *Schk. Fil. t.* 50.—Mauritius.
12. **P. Capense,** *J. Sm.* Aspidium Capense, *Willd.* (*in part*). —South Africa.
13. **P. frondosum,** *J. Sm.* Aspidium frondosum, *Lowe.* Nephrodium læte-virens, *Lowe.*—Madeira.
14. **P. aristatum,** *Presl; Hook. fil. Fl. Nov. Zel. t.* 78. Poly-

podium aristatum, *Forst.* Aspidium aristatum, *Sw.; Schk. Fil. t.* 42.—Norfolk Island.

15. **P. coniifolium,** *Presl.* Aspidium coniifolium, *Wall.*—East Indies and Ceylon.

16. **P. hispidum,** *J. Sm.* Aspidium hispidum, *Sw.* Polypodium setosum, *Forst.* Aspidium setosum, *Schk. Fil. t.* 49. —New Zealand.

85. CYCLOPELTIS, *J. Sm.*

(Aspidii sp., *Sw.* Lastreæ sp., *Presl.* Hemicardium, *Fée.*)

Vernation fasciculate, decumbent. *Fronds* pinnate, 1–3 feet high; pinnæ entire, falcate, lanceolate, 4–9 inches long, sessile, auricled at the base, articulated with the rachis. *Veins* two or three times forked; venules free, the lower anterior and exterior ones sporangiferous on or below their apices. *Sori* round, transverse, biserial. *Indusium* orbicular.

1. **C. semicordata,** *J. Sm.* Aspidium semicordatum, *Sw.; Plum. Fil. t.* 113. Hemicardium Nephrolepis, *Fée.*—West Indies.

86. DIDYMOCHLÆNA, *Desv.*

Vernation fasciculate and erect, subarboreous. *Fronds* bipinnate, 2–6 feet long; pinnules oblong-elliptical, oblique, base truncate, subsessile, articulated with the rachis. *Veins* radiating, forked; costa excentric; venules direct, free, their apices clavate, the exterior one fertile. *Sori* terminal, elliptical, marginal. *Indusium* oblong, attached longitudinally.

1. **D. truncatula,** *J. Sm.* Aspidium truncatulum, *Sw.* Aspidium squamatum, *Willd.; Plum. Fil. t.* 56. Didymochlæna sinuosa, *Desv.; Hook. Gen. Fil. t.* 8. Diplazium pulcherrimum, *Radd. Bras. Fil. t.* 59.—Malay Archipelago and Tropical America.

87. **ARTHROPTERIS,** *J. Sm.*

(Polypodii sp., *Forst.* Nephrodii sp., *R. Br.* Aspidii sp., *Willd.*)

Vernation articulate, distant; rhizome slender, sarmentose, scandent; node of articulation basal or more or less elevated on the stipes. *Fronds* pinnate, 1–1½ foot long; pinnæ entire, dentate or pinnatifid. *Veins* forked or pinnate; venules free, their apices clavate, the lower exterior one sporangiferous. *Sori* terminal, round. *Indusium* reniform, or absent.

1. **A. albo-punctata,** *J. Sm.* Aspidium albo-punctatum, *Willd.* Aspidium leucosticton, *Kunze.* Aspidium (Lastrea) Boutonianum, *Hook. Ic. Pl. t.* 931.—Bourbon (*Willd.*), Sierra Leone (*Kunze*).
2. **? A. filipes,** *T. Moore in Gard. Chron.* 1855. *p.* 368.—New Zealand?

88. **NEPHROLEPIS,** *Schott.*

(Aspidii sp. *et* Nephrodii sp., *Auct.* Lepidoneuron, *Fée.* Leptopleura, *Presl.*)

Vernation fasciculate, erect, stoloniferous. *Fronds* pinnate, linear, 1–6 feet long; pinnæ numerous, oblong or linear-lanceolate and falcate, entire, dentate or deeply crenate, upper side of the base auriculated, sessile, articulated to the rachis. *Veins* forked; venules free, clavate, the lower exterior one fertile. *Sori* terminal, round, submarginal, transverse uniserial. *Indusium* reniform, sometimes equal and conniving with the soriferous crenule, forming a marginal bilabiate cyst.

1. **N. pectinata,** *Schott.* Aspidium pectinatum, *Willd.* Aspidium trapezoides, *Schk. Fil. t.* 29 *B.* Aspidium Schkuhrii, *Link.*—Tropical America.
2. **N. undulata,** *J. Sm.* Aspidium undulatum, *Sw.*—West Africa.
3. **N. tuberosa,** *Presl.* Aspidium tuberosum, *Bory.* Nephrodium edule, *D. Don.*—East Indies.
4. **N. exaltata,** *Schott, Gen. Fil. t.* 3; *Hook. Gen. Fil. t.* 35.

Polypodium exaltatum, *Linn.; Plum. Fil. t.* 63. Aspidium exaltatum, *Sw.; Schk. Fil. t.* 32 *B; Radd. Bras. Fil. t.* 46.—Tropical America.

5. **N. ensifolia,** *Presl.* Aspidium ensifolium, *Sw.; Schk. Fil. t.* 32. Nephrolepis platyotis, *Kunze.*—Tropical America and Java.
6. **N. hirsutula,** *Presl.* Aspidium hirsutulum, *Sw.; Schk. Fil. t.* 33. Lepidoneuron hirsutulum, *Fée.*—East Indies.
7. **N. davallioides,** *J. Sm.* Aspidium davallioides, *Sw.; Hook. Ic. Plant. t.* 395–6.—Malayan Archipelago.

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89. OLEANDRA, *Cav.*

(Aspidii sp., *Auct.* Neuronia, *D. Don.* Ophiopteris, *Reinw.*)

Vernation articulate; rhizome surculose, or erect, frutescent, and ramose; node of articulation sessile, or more or less elevated on the stipes. *Fronds* simple entire, linear-lanceolate, 1–1½ feet long, smooth or pilose. *Veins* simple or once or twice forked; venules free, parallel, their apices curved outwards, forming a narrow, cartilaginous margin, the exterior venule sporangiferous. *Sori* round, medial or costal, transversely uniserial or irregular. *Indusium* reniform, lunulate, or rarely suborbicular.

1. **O. nodosa,** *Presl.* Aspidium nodosum, *Willd.* Aspidium articulatum, *Schk. Fil. t.* 27.—Tropical America.
2. **O. neriiformis,** *Cav.; Kunze, Fil. t.* 18. Aspidium neriiformis, *Sw.* Ophiopteris verticillata, *Reinw.* Oleandra hirtella, *Miq.; Kunze, Fil. t.* 129.—East Indies, Malayan Archipelago, and Tropical America.

TRIBE VI. DICKSONIEÆ.

Sporangiferous receptacles terminal, marginal, punctiform, or by combination linear-elongated. *Indusium* lateral, interiorly attached, its exterior margin free, generally conniving with the opposite portion of the margin (which is changed in texture), forming a bivalved or tubular cyst or groove, containing the sporangia.

SECT. I. LINDSÆÆ, J. Sm.

Sporangiferous receptacles combined, forming a linear, continuous or interrupted marginal sorus, or rarely simple-punctiform.

90. LINDSÆA, *Dry.*

Vernation fasciculate, erect or decumbent. *Fronds* simple, pinnate, or bi-tripinnate; pinnæ oblong, dimidiate, upper margin fertile; costa excentric or obsolete. *Veins* radiating, forked; venules free, their apices combined by a continuous, transverse, sporangiferous receptacle. *Indusium* linear, usually shorter than the indusiform margin.

1. **L. cultrata,** *Sw.; Schk. Fil. t.* 114; *Hook. et Grev. Ic. Fil. t.* 144.—East Indies.
2. **L. Guianensis,** *Dry.; Hook. Sp. Fil.* 1. *t.* 62.—Tropical America.

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91. SCHIZOLOMA, *Gaud.*

Vernation fasciculate. *Fronds* simple, lobed, or pinnate; pinnæ oblong or linear-lanceolate; costa central. *Veins* forked; venules anastomosing, forming oblique, elongated areoles. *Sporangiferous receptacles* continuous on both margins. *Indusium* linear, usually equal with the indusiform margin.

1. **S. ensifolia,** *J. Sm.* Lindsæa ensifolia, *Sw.; Hook. et Grev. Ic. Fil. t.* 3. Lindsæa lanceolata, *Labill. Nov. Holl. t.* 248. *f.* 1.—Malayan and Polynesian Islands.

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92. DICTYOXIPHIUM, *Hook.*

Vernation fasciculate, erect. *Fronds* simple, linear-lanceolate, attenuated and decurrent on the stipes, 1–3 feet long; costa central. *Veins* compound anastomosing. *Sporangiferous receptacles* continuous on both margins. *Indusium* linear, nearly equal with the indusiform margin.

1. **D. Panamense,** *Hook. Gen. Fil. t.* 62; *J. Sm. Gen. Fil.*—Panama.

SECT. II. DAVALLIEÆ, *J. Sm.*

Sporangiferous receptacles punctiform, terminal, marginal. *Indusium* lateral, attached on the interior side of the receptacles, forming with the margin a bilabiate, urceolate, or tubular vertical cyst, including the sporangia.

93. HUMATA, *Cav.*

(Davalliæ sp., *Auct.*)

Vernation articulated; rhizome surculose, squamose. *Fronds* linear-lanceolate, entire, sinuose, pinnatifid, or deltoid bipinnatifid. *Veins* simple or forked; venules free, often thickened and clavate, all, or the exterior venules only, soriferous on their apices. *Indusium* subrotund or reniform, its sides free.

1. **H. heterophylla,** *J. Sm.; Hook. Gen. Fil. t.* 114. H. ophioglossa, *Cav.* H. pinnatifida, *Cav.* Davallia heterophylla, *Sm.; Hook. et Grev. Ic. Fil. t.* 230.—Malay Archipelago.
2. **H. pedata,** *J. Sm.* Davallia pedata, *Sm.; Hook. Sp. Fil. t.* 45 *A.* Pachypleura pedata, *Presl.*—East Indies and Malayan Archipelago.

94. DAVALLIA, *Sw.*

(Davalliæ sp., *Hook.* Stenolobus, *Presl.* Scyphularia, *Fée.*)

Vernation articulated; rhizome surculose, squamose, creeping, or suberect and frutescent. *Fronds* generally deltoid, pinnate or bi-tripinnate. *Veins* forked; venules free; fertile venule sometimes very short, dentiform. *Sori* terminal, vertical. *Indusium* urceolate or tubular.

1. **D. pentaphylla,** *Blume; Kunze, Fil. t.* 108. Scyphularia pentaphylla, *Fée.* Davallia triphylla, *Hook. Sp. Fil. t.* 46 *A.*—Malay Archipelago.
2. **D. ornata,** *Wall.* Stenolobus ornatus, *Presl.*—Singapore.

3. **D. solida,** *Sw.; Schk. Fil. t.* 121; *Hook. Sp. Fil. t.* 42 *B.*—Malayan and Polynesian Islands.
4. **D. pyxidata,** *R. Br.; Hook. Gen. Fil. t.* 27; *Hook. Sp. Fil. t.* 55 *C.*—Australia.
5. **D. elegans,** *Sw.; Hook. Sp. Fil. t.* 43 *A, B.*—Malay Archipelago.
6. **D. divaricata,** *Blume.* Davallia polyantha, *Hook. Sp. Fil. t.* 59 *A.*—Malayan Archipelago.
7. **D. dissecta,** *J. Sm.; Moore in Gard. Chron.* 1855, *p.* 469. —Malayan Archipelago.
8. **D. bullata,** *Wall.; Hook. Sp. Fil. t.* 50 *B.*—East Indies.
9. **D. Canariensis,** *Sw.; Hook. Sp. Fil. t.* 56 *A; Lodd. Bot. Cab. t.* 142. Trichomanes Canariensis, *Linn.* Polypodium Lusitanicum, *Linn.*—South of Europe, Madeira, and Canary Islands.
10. **D. Lindleyi,** *Hook. Sp. Fil. t.* 58 *B.* D. attenuata, *Hort.* —New Zealand?

95. LEUCOSTEGIA, *Presl.*

(Davalliæ sp., *Auct.*)

Vernation articulated; rhizome surculose. *Fronds* deltoid, tripinnatifid or multifid, sometimes lanceolate and bipinnatifid. *Veins* forked; venules free, the exterior one soriferous and often very short. *Indusium* sub-reniform, oblong, or nearly orbicular, plane, scariose, free.

1. **L. immersa,** *Presl; J. Sm.; Hook. Gen. Fil. t.* 52. Davallia immersa, *Wall.*—East Indies.
2. **L. chærophylla,** *J. Sm.* Davallia chærophylla, *Wall.; Hook. Sp. Fil. t.* 51.—East Indies.

96. ODONTOSORIA, *J. Sm.*

(Davallia § Odontosoria, *Presl.* Stenoloma, *Fée.*)

Vernation adherent, uniserial, sarmentose. *Fronds* bi-tripinnatifid, lanceolate or deltoid, 1–5 feet long, erect or flexuose, scandent; ultimate segments cuneiform, entire, lobed or laciniated. *Veins* dichotomously forked; venules free, soriferous on their apices. *Sori* simple or binate. *Special* and *accessory indusia* forming a vertical, urceolate or, by confluence, oblong, sporangiferous, marginal cyst.

1. **O. tenuifolia,** *J. Sm.* Davallia tenuifolia, *Sw.*—East Indies and Malay Archipelago.
2. **O. aculeata,** *J. Sm.* Davallia aculeata, *Sm.; Hook. Sp. Fil. t.* 54. Adiantum aculeatum, *Linn.; Plum. Fil. t.* 94.—West Indies.

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97. MICROLEPIA, *Presl.*

(Davalliæ sp., *Auct.*)

Vernation adherent, uniserial, sarmentose. *Fronds* pinnate or bi-tripinnatifid, 1–6 feet high. *Veins* simply or pinnately forked; venules free, the exterior one or more soriferous. *Indusium* attached by its broad base only, or by its base and sides, constituting a simple, cucullate or semi-urceolate, vertical cyst.

1. **M. cristata,** *J. Sm. En. Fil. Philipp.* Davallia Khasyana, *Hook. Sp. Fil. t.* 57.—East Indies.
2. **M. platyphylla,** *J. Sm.* Davallia platyphylla, *D. Don.* Davallia Lonchitidea, *Wall.; Hook. Sp. Fil. t.* 46 *B.*—East Indies.
3. **M. polypodioides,** *Presl; Hook. Gen. Fil. t.* 58. Davallia polypodioides, *D. Don.* Polypodium nudum, *Forst.* Davallia rhomboidea, *Wall.* Davallia flaccida, *R. Br.*—East Indies, Polynesia.
4. **M. Novæ-Zelandiæ,** *J. Sm.* Davallia Novæ-Zelandiæ, *Colenso; Hook. Sp. Fil. t.* 51 *B.* Davallia hispida, *Hew.*—New Zealand.

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98. DEPARIA, *Hook. et Grev.*

Vernation subfasciculate, decumbent. *Fronds* bipinnatifid, 1–2½ feet long. *Veins* pinnate; venules free. *Sori* terminal, exserted. *Special* and *accessory indusia* conniving, and forming a calyciform, pedicellate, vertical cyst.

1. **D. prolifera,** *Hook. et Grev. Ic. Fil. t.* 154; *Hook. Gen. Fil. t.* 44 *B.* Dicksonia prolifera, *Kaulf.*—Sandwich Islands.

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99. **TRICHIOCARPA,** *J. Sm.*

(Deparia § Trichiocarpa, *Hook.* Cionidium, *Moore.*)

Vernation fasciculate, decumbent. *Fronds* bi-tripinnatifid, deltoid, 6–18 inches high; pinnæ distant, pinnate below, pinnatifid decurrent above; pinnules lanceolate, pinnatifid or sinuose lobed. *Veins* uniform, reticulated; areoles transverse oblong; marginal veinlets free, exserted beyond the margin, each becoming a pedicel, bearing a globose sorus. *Indusium* cyathiform, spreading, entire.

1. **T. Moorii,** *J. Sm.* Deparia Moorii, *Hook. Journ. Bot. and Kew Gard. Misc. v.* 2. *t.* 3.—New Caledonia.

SECT. III. TRICHOMANEÆ, *J. Sm.*

Sporangia sessile, compactly seated round a columnar receptacle, which consists of a thickened portion of the venules, included within a bilabiate, urceolate, or more or less tubular, calyciform, vertical cyst, formed by a connivance of the special and accessory indusia.

100. **TRICHOMANES,** *Linn.*

Vernation fasciculate and erect, or uniserial and sarmentose. *Fronds* varying from simple to decompound multifid, membranaceous and pellucid, smooth, or bearing simple, forked, or stellate hairs. *Veins* simple or forked, free. *Sori* terminal, often subpedicellate. *Indusium* urceolate or tubular; receptacle continued beyond the sporangia and mouth of the indusium, often elongated and filiform.

1. **T. reniforme,** *Forst.; Hook. et Grev. Ic. Fil. t.* 31.—New Zealand.

2. **T. radicans,** *Sw.; Lindl. and Moore's Brit. Ferns, t.* 48. Trichomanes speciosum, *Willd.* T. pyxidiferum, *Huds.* (*non Linn.*) T. brevisetum, *R. Br.* T. alatum, *Hook. in Fl. Lond. t.* 53 (*non Sw.*). T. Europæum, *Sm. in Rees' Cyclop.* T. Hibernicum, *Spreng.* T. Andrewsii, *Newm.* Hymenophyllum alatum, *Sm. Eng. Bot. t.* 1417.—Tropics and temperate regions of the northern hemisphere.
3. **T. crispum,** *Linn.; Plum. Fil. t.* 86; *Hook. et Grev. Ic. Fil. t.* 12.—Tropical America.

101. HYMENOPHYLLUM, *Sm.*

Vernation uniserial and sarmentose. *Fronds* varying from simple to decompound-multifid, membranaceous and pellucid, smooth, or bearing simple, forked, or stellate hairs. *Veins* simple or forked, free. *Sori* terminal. *Indusium* short, urceolate, bilabiate or bivalved; receptacle short, included within the indusium.

1. **H. Tunbridgense,** *Sm. Eng. Bot. t.* 162; *Schk. Fil. t.* 135 *D.; Lindl. and Moore's Brit. Ferns, t.* 49 *A.* H. cupressiforme, *Labill. Nov. Holl. t.* 250. *f.* 2.—Temperate regions of both hemispheres.
2. **H. unilaterale,** *Willd.; Lindl. and Moore's Brit. Ferns, t.* 49 *B.* H. Wilsoni, *Hook.; Eng. Bot. t.* 2686.—Temperate regions of both hemispheres.
3. **H. dilatatum,** *Sw.; Schk. Fil. t.* 135; *Hook. et Grev. Ic. Fil. t.* 60.—New Zealand.

SECT. IV. DICKSONIEÆ, *J. Sm.*

Sporangiferous receptacles terminal, punctiform, marginal. *Special* and *accessory indusia* conniving, forming an urceolate or bivalved, reflexed cyst, including the sporangia.

102. SITOLOBIUM, *Desv.*

(Dicksoniæ sp., *Auct.*)

Vernation uniserial and sarmentose. *Fronds* bi-tripinnatifid, 2–6 feet high. *Veins* simple or pinnately forked, the exterior venule, or more, soriferous on their apices. *Indusium* columnar, reflexed, entire calyciform, or sub-bilabiate.

1. **S. punctilobum,** *J. Sm.* Nephrodium punctilobum, *Michx.* Aspidium punctilobum, *Sw.* Dicksonia punctiloba, *Hook.* Dicksonia pubescens, *Schk. Fil. t.* 131. Dicksonia pilosiuscula, *Willd.* Sitolobium pilosiusculum, *Desv.; J. Sm. Gen. Fil.*—North America.
2. **S. adiantoides,** *J. Sm.* Dicksonia adiantoides, *Humb.; Hook. Sp. Fil. t.* 26 *B.* Polypodium globuliferum, *Plum. Fil. t.* 30.—Tropical America.
3. **S. davallioides,** *J. Sm.* Dicksonia davallioides, *R. Br.*—Australia.
4. **S. rubiginosum,** *J. Sm.* Dicksonia rubiginosa, *Kaulf.; Hook. Sp. Fil. t.* 27 *A.*—Tropical America.
5. **S. Moluccanum,** *J. Sm.* Dicksonia Moluccanum, *Blume.*—Malay Archipelago.

103. BALANTIUM, *Kaulf.*

(Dicksoniæ sp., *L'Hérit.* Culcita, *Presl.*)

Vernation fasciculate, decumbent, densely criniferous. *Fronds* deltoid, tripinnate, smooth; ultimate segments dentate. *Veins* pinnate; venules free, simple or forked. *Sporangia* terminal, included within transversely oblong, concave, bilabiate cysts, formed by the connivance of the special and accessory indusia, constituting large, exserted, nearly globose sori, in thyrsiform clusters.

1. **B. Culcita,** *Kaulf.; Hook. Gen. Fil. t.* 60 *A.* Dicksonia Culcita, *L'Hérit.* Culcita macrocarpa, *Presl.*—Madeira, Azores, and Tropical America.

104. DICKSONIA, *L'Hérit.*

Vernation fasciculate, erect, arborescent. *Fronds* bi-tripinnate, 5–15 feet long. *Veins* pinnate; venules free, simple. *Accessory indusium* concave, cucullate, larger than the special indusium, with which it connives, forming a reflexed, unequal, bilabiate, sporangiferous cyst, constituting large globose sori.

1. **D. arborescens,** *L'Hérit.; Hook. Sp. Fil. t.* 23. D. auricoma, *Spreng.* Balantium auricomum, *Kaulf.; Presl.* Dicksonia integra, *Sw.*—St. Helena.
2. **D. antarctica,** *Lab. Nov. Holl. t.* 249. Balantium antarcticum, *Presl.* Cibotium Billardieri, *Kaulf.*—Australia.
3. **D. squarrosa,** *Sw.; Schk. Fil. t.* 130.—New Zealand.
4. **D. lanata,** *Colenso; Hook. Sp. Fil. t.* 23.—New Zealand.

105. **CIBOTIUM,** *Kaulf.*

(Pinonia, *Gaud.*)

Vernation fasciculate, decumbent, or erect and arborescent, densely criniferous. *Fronds* tripinnatifid, 5–15 feet long, generally glaucous beneath. *Veins* forked or pinnate; venules free. *Accessory indusium* concave, cucullate, adnate on the margin, larger than the special indusium, with which it connives, forming a reflexed, bilabiate, cucullate, sporangiferous cyst, constituting dentiform sori.

1. **C. Schiedei,** *Schlecht.; Hook. Sp. Fil. t.* 30 *A.*—Mexico.
2. **C. Barometz,** *J. Sm. Gen. Fil.* Cibotium glaucescens, *Kunze, Fil. t.* 31.—China.

106. **THYRSOPTERIS,** *Kunze.*

(Panicularia, *Colla.*)

Vernation fasciculate, arborescent. *Fronds* decompound-multifid, the fertile portion contracted, paniculate. *Veins* pinnate; venules free, their apices forming soriferous pedicels. *Accessory* and *special indusia* equal, uniform, constituting a calyciform cyst, including sessile, compressed sporangia, seated on an elevated, globose receptacle.

1. **T. elegans,** *Kunze, Fil. t.* 1; *Hook. Gen. Fil. t.* 44 *A.*—Juan Fernandez.

TRIBE VII. CYATHEÆ, *J. Sm.*

Sori round, intramarginal. *Sporangia* generally sessile, compactly seated on an elevated, globose or columnar receptacle, furnished with a special indusium attached either completely or only half round the base of the receptacle, forming a calyciform or semicalyciform cup; sometimes the attachment is less than half round, the indusium being squamæform, or it is even altogether absent.

107. CYATHEA, *Sm.*

Vernation fasciculate, erect, arborescent. *Fronds* bi-tripinnatifid, 5–15 feet long; pinnæ and pinnules in some species articulated with the rachis. *Veins* forked; venules free. *Sori* axillary; receptacle columnar. *Indusium* complete calyciform, its margin entire or unequally laciniated.

1. **C. canaliculata,** *Willd.; Hook. Sp. Fil. t.* 11 *B.*—Mauritius.
2. **C. excelsa,** *Sw.; Hook. Sp. Fil. t.* 12 *B.*—Mauritius.
3. **C. arborea,** *Sm.* Polypodium arboreum, *Linn.; Plum. Fil. t.* 1 *et* 2. Disphenia arborea, *Presl.* Cyathea elegans, *Hew.; Hook. Gen. Fil. t.* 23.—Jamaica.
4. **C. serra,** *Willd.; Hook. Sp. Fil. t.* 9 *A.*—West Indies and Martinique.
5. **C. medullaris,** *Sw.; Schk. Fil. t.* 133. Polypodium medullare, *Forst.*—New Zealand.
6. **C. aculeata,** *Willd.* Disphenia aculeata, *Presl.*—West Indies.
7. **C. dealbata,** *Sw.; Rich. Fl. Nov. Zeal. t.* 10.—New Zealand.

108. HEMITELIA, *R. Br.*

(Cnemidaria, *Presl.*)

Vernation fasciculate, erect, arborescent. *Fronds* bipinnatifid, 4–8 feet long; stipes smooth or aculeated. *Veins* simply or pinnately forked; venules all free, or the lower pair of the lowest fascicles angularly anastomosing, forming a costal arch. *Sori* medial. *Indusium* semicalyciform; receptacle globose.

1. **H. speciosa,** *Kaulf.; Hook. Sp. Fil. t.* 13 *B.* Cyathea speciosa, *Humb.* Hemitelia integrifolia, *Klotzsch.*—Tropical America.
2. **H. grandifolia,** *Spreng.; Hook. Sp. Fil. t.* 14 *B.* Cyathea grandifolia, *Willd.; Plum. Fil. t.* 26.—West Indies.
3. **H. horrida,** *R. Br.; Hook. Sp. Fil. t.* 15. Polypodium horridum, *Linn.; Plum. Fil. t.* 8. Cyathea horrida, *Sm.* —West Indies.

109. ALSOPHILA, *R. Br.*

(Hemiteliæ sp., *R. Br.*)

Vernation fasciculate, erect, arborescent. *Fronds* bi-tripinnatifid, 5–15 feet long. *Veins* simple or forked, free. *Sori* axillary or medial. *Indusium* semicalyciform, or small and squamiferous, or trichiform, often obsolete.

1. **A. Capensis,** *J. Sm.* Polypodium Capense, *Linn.* Hemitelia Capensis, *R. Br.; Hook. Gen. Fil. t.* 42 *A.* Cyathea riparia, *Willd.*—South Africa.
2. **A. Hostmanni,** *J. Sm.* Hemitelia Hostmanni, *Hook. Ic. Pl. t.* 646.—Guiana.
3. **A. aspera,** *R. Br.; Hook. et Grev. Ic. Fil. t.* 213, 215.—West Indies.
4. **A. australis,** *R. Br.; Hook. Sp. Fil. t.* 19 *A.*—New South Wales and Tasmania.
5. **A. radens,** *Kaulf.*—Brazil.

110. LOPHOSORIA, *Kunze.*

(Alsophilæ sp., *Auct.*)

Vernation fasciculate, erect, arborescent, densely criniferous. *Fronds* tripinnatifid, glaucous beneath. *Veins* forked; venules free, their apices thickened. *Sori* medial, criniferous; receptacle scarcely elevated.

1. **L. pruinata,** *Presl.* Polypodium pruinatum, *Sw.* Alsophila pruinata, *Kaulf.* Polypodium griseum, *Schk. Fil. t.* 25. —Tropical America.

*** Sporangia globose, sessile, opening vertically; ring transverse or sub-oblique.*

TRIBE VIII. GLEICHENIÆ, *J. Sm.*

Sporangia globose or pyriform; ring transverse. *Sori* punctiform, naked.

111. GLEICHENIA, *R. Br.*

(Mertensia, *Willd.*)

Vernation uniserial and sarmentose. *Fronds* 1–6 feet high, once or more times dichotomously branched; pinnæ linear, pinnatifid, ultimate divisions small, plane, or the margin revolute, forming a cucullate cyst. *Veins* simply or pinnately forked; venules free, the exterior one bearing 2–4 sporangia on its apex; receptacle punctiform, superficial or immersed.

1. **G. microphylla,** *R. Br.*—New South Wales and Tasmania.
2. **G. dicarpa,** *R. Br.; Hook. Sp. Fil. v.* 1. *t.* 1 *C; Kunze, Fil. t.* 70.—Tasmania.
3. **G. speluncæ,** *R. Br.; Hook. Sp. Fil. v.* 1. *t.* 1 *A.*—New South Wales and Tasmania.
4. **G. flabellata,** *R. Br.; Labill. Sert. Nov. Caled. t.* 12.—Australia and Tasmania.
5. **G. dichotoma,** *Hook.* Mertensia dichotoma, *Willd.; Schk. Fil. t.* 148; *Lang. et Fisch. Ic. Fil. t.* 29. Polypodium dichotomum, *Thunb. Fl. Jap. t.* 37. Gleichenia Hermanni, *R. Br.*—General throughout the Tropical and Subtropical regions of the Southern Hemisphere.

*** *Sporangia oval or oblong, sessile, opening vertically and longitudinally; apex striated, the striæ forming a more or less complete ring, which is sometimes nearly obsolete.*

Tribe IX. SCHIZÆÆ, *J. Sm.*

Sporangia oval or oblong, opening on the exterior side, produced on contracted racemes, or on terminal or marginal spiculæform appendices, or the fertile frond is wholly contracted, or subcontracted; apical ring complete.

112. LYGODIUM, *Sw.*

(Hydroglossum, *Willd.*)

Vernation uniserial, distant and sarmentose, or contiguous and cæspitose. *Fronds* scandent, twining, extending to an indefinite length; pinnæ conjugate, palmate-lobed, pinnatifid, or pinnate. *Veins* forked, free, extending beyond the margin, forming sporangiferous spiculæ composed of two rows of imbricate, indusiate cysts, each cyst containing an oval resupinate sporangium attached by its inner side, opening longitudinally on its outer side.

1. **L. palmatum,** *Sw.; Schk. Fil. t.* 140.—North America.
2. **L. flexuosum,** *Sw.* Ophioglossum flexuosum, *Linn.* Lygodium dichotomum, *Sw.; Hook. et Grev. Ic. Fil. t.* 55.—East Indies and Malayan Archipelago.
3. **L. scandens,** *Sw.*—East Indies.
4. **L. Japonicum,** *Sw.* Ophioglossum Japonicum, *Sw.*—China and Japan.
5. **L. articulatum,** *A. Rich. in Voy. d'Astrolabe, t.* 15.—New Zealand.

113. LYGODICTYON, *J. Sm.*

(Lygodii sp., *Schk.* Hydroglossi sp., *Willd.; Presl.*)

Vernation and general habit as in *Lygodium*, differing in the venation being reticulated.

1. **L. Forsteri,** *J. Sm. in Hook. Gen. Fil. t.* 111 *A.* Lygodium reticulatum, *Schk. Fil. t.* 139. Hydroglossum polycarpum, *Willd.* Ophioglossum scandens, *Forst.* (*non Linn.*)—Polynesian Islands.

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114. ANEMIA, *Sw.*

Vernation fasciculate, erect or decumbent. *Fronds* pinnate or bi-tripinnatifid; the fertile always tripartite, the two opposite segments contracted, erect, constituting two sporangiferous racemes, the third segment sterile. *Veins* forked, free. *Sporangia* oval, attached by the base, opening vertically on the exterior side.

1. **A. collina,** *Radd. Fil. Bras. t.* 12.—Tropical America.
2. **A. villosa,** *Presl.* A. Raddiana, *Link.* A. flexuosa, *Radd. Fil. Bras. t.* 13.—Tropical America.
3. **A. hirsuta,** *Sw.* Osmunda hirsuta, *Linn.; Plum. Fil. t.* 152.—Tropical America.
4. **A. adiantifolia,** *Sw.; Hook. et Grev. Ic. Fil. t.* 16. Osmunda adiantifolia, *Linn.; Plum. Fil. t.* 158.—Tropical America.

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115. ANEMIDICTYON, *J. Sm.*

(Anemiæ sp., *Auct.*)

Vernation and habit as in *Anemia*, differing in the venation being reticulated.

1. **A. Phyllitidis,** *J. Sm. in Hook. Gen. Fil. t.* 103. Osmunda Phyllitidis, *Linn.; Plum. Fil. t.* 156. Anemia Phyllitidis, *Sw.* Anemia fraxinifolia, *Radd. Fil. Bras. t.* 8 *bis.* Anemia longifolia, *Radd. Fil. Bras. t.* 8. Anemia cordifolia, *Presl, Reliq. Hænk. t.* 11. *f.* 3.—Tropical America.

116. **MOHRIA**, *Sw.*

(Coptophyllum, *Gard.*)

Vernation fasciculate, decumbent. *Fronds* bipinnate; pinnæ entire, laciniated, or multifid, 6–12 inches high; the fertile generally contracted, constituting a sporangiferous raceme, or subcontracted, with the margin of the segments inflexed, indusiform, and sporangiferous. *Veins* free. *Sporangia* sessile, oval or nearly globose, opening vertically on their exterior side.

1. **M. thurifraga,** *Sw. Syn. Fil. t.* 5; *Schk. Fil. t.* 143; *Hook. Gen. Fil. t.* 104 *B.* Osmunda thurifraga, *Linn.*—South Africa.

117. **SCHIZÆA**, *Sm.*

(Lophidium, *Rich.; Presl.* Rhipidium, *Bernh.*)

Vernation fasciculate, erect or decumbent, rarely distant. *Fronds* linear, simple, stipitiform, simply forked, or dichotomously flabellate. *Veins* forked, free; fertile appendices terminal, pinnate cristæform; segments induplicate, each bearing on their inner sides two compact rows of sessile oval sporangia, attached by their base and opening vertically.

1. **S. pusilla,** *Pursh; Hook. et Grev. Ic. Fil. t.* 48.—United States and New Zealand.
2. **S. elegans,** *Sw.* Lophidium elegans, *Presl.* Tropical America.

TRIBE X. OSMUNDEÆ.

Sporangia globose, reticulated, short-pedicellate; apex oblique, gibbous; ring incomplete or obsolete, opening by a vertical slit, sub-bivalved.

118. **OSMUNDA**, *Linn.*

Vernation fasciculate, erect, subarboreous. *Fronds* pinnate or bipinnate, 3–10 feet high; pinnæ articulated with the rachis.

Veins forked, free; fertile wholly, or the upper or middle portion only, contracted, forming simple or compound sporangiferous panicles.

* *Fertile frond wholly contracted.*

1. **O. cinnamomea,** *Linn.; Schk. Fil. t.* 146.—North and South America, East Indies.

** *Lateral pinnæ of fertile frond contracted.*

2. **O. Claytoniana,** *Linn.* O. interrupta, *Michx.; Schk. Fil. t.* 144.—North America.

*** *Terminal pinnæ of fertile frond contracted.*

3. **O. regalis,** *Linn.; Plum. Fil. t. B. f.* 4; *Schk. Fil. t.* 145; *Eng. Bot. t.* 209; *Lindl. and Moore's Brit. Ferns, t.* 50. —North Temperate Zone, Brazil.
4. **O. spectabilis,** *Willd.* O. regalis, var. β, *Linn.*—North America.

119. TODEA, *Willd.*

(Leptopteris, *Presl.* Osmundæ sp., *Sw.*)

Vernation fasciculate, erect, subarboreous. *Fronds* bipinnatifid, 2–6 feet high; pinnæ coriaceous or membranaceous; fertile frond subcontracted. *Veins* forked; venules free, sporangiferous, constituting oblong, linear, simple or forked, naked sori.

1. **T. Africana,** *Willd.; Schk. Fil. t.* 147; *Hook. Gen. Fil. t.* 46 *B. f.* 1. Acrostichum barbarum, *Linn.*—South Africa.
2. **T. rivularis,** *Sieb.; Kunze, Anal. t.* 4. T. Australasica, *A. Cunn.*—Australia, Tasmania.
3. **T. hymenophylloides,** *Rich. Voy. d'Astrolabe, t.* 16; *Hook. Gen. Fil. t.* 46. Leptopteris hymenophylloides, *Presl.* Todea pellucida, *Carm.; Hook. Ic. Pl. t.* 8.—New Zealand.

ORDER II. **MARATTIACEÆ,** *Kaulf.*

Sporangia dorsal, exannulate, opaque, horny, generally sessile, distinct, or connate and compound, opening by a pore or longitudinal slit.

120. **MARATTIA,** *Sm.*

(Discostegia *et* Gymnotheca, *Presl.*)

Vernation fasciculate, erect, subarboreous, each frond rising from between two fleshy stipulæform appendages (which sometimes assume the character of abnormal fronds); base of the stipes clavate, pseudo-articulate with the axis. *Fronds* bi-tripinnate, 6–18 feet high; pinnules articulated with the rachis. *Veins* simple or forked, free. *Sporangia* subterminal, 9–24-biserial, laterally and oppositely connate, forming an oblong, sessile, bivalved, multilocular spore-case, the cells opening by a slit on their interior side.

1. **M. alata,** *Sm. Ic. ined. t.* 46; *Schk. Fil. t.* 152; *Hook. Gen. Fil. t.* 26. Discostegia alata, *Presl.*—West Indies.
2. **M. cicutæfolia,** *Kaulf.; Mart. Ic. Crypt. Bras. t.* 69, 71, 72. Gymnotheca cicutæfolia, *Presl.*—Brazil.
3. **M. elegans,** *Endl.*—Norfolk Island, New Zealand.
4. **M. Ascensionis,** *J. Sm.*—*Fronds* unequally bi-tripinnate, 4–6 feet long; pinnæ 12–18 inches long; upper pinnules lanceolate-acuminate, 4–6 inches long, crenate, lobed, or unequally subpinnatifid; lower ultimate pinnules elliptical-acuminate, 1–1½ inches long, crenate; rachis winged; stipes muricate, floccose-squamose, lirate.—Island of Ascension.

   β, cristata, *J. Sm.*—*Stipulæform appendages* bearing short abnormal fronds, which are often soriferous.—Island of Ascension.

121. **EUPODIUM,** *J. Sm.*

(Marattiæ sp., *Kaulf.*)

Vernation and general character as in *Marattia*, differing in the spore-case being pedicellate!

1. **E. Kaulfussii,** *J. Sm.; Hook. Gen. Fil. t.* 118. Marattia lævis, *Kaulf.* (*non Sm.*).—Brazil.

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122. **ANGIOPTERIS,** *Hoffm.*

Vernation fasciculate, erect, subarboreous; each frond rising from between two fleshy, stipulæform appendages; base of the stipes clavate, pseudo-articulated with the axis. *Fronds* 6–18 feet high, bipinnate; pinnules articulated with the rachis. *Veins* simple or forked, free. *Sporangia* subterminal, 7–24-biserial, sessile, free, opening by a slit on the inner side. *Sori* oblong, laterally contiguous, forming a broad submarginal row.

1. **A. evecta,** *Hoffm.; Schk. Fil. t.* 150. Polypodium evectum, *Forst.*—Islands of the Pacific Ocean and Ceylon.
2. **A. Teysmanniana,** *De Vriese.*—Java.

ORDER III. **OPHIOGLOSSACEÆ.**

Sporangia subglobose, exannulate, homogeneous, coriaceous, opaque, sessile, unilocular, opening by a vertical or transverse slit, bivalved, produced on rachiform, simple or paniculate spikes.

123. **OPHIOGLOSSUM,** *Linn.*

Veins reticulated. *Fertile spike* simple, pedunculate. *Sporangia* connate, in two unilateral rows, transversely bivalved.

1. **O. vulgatum,** *Linn.; Schk. Fil. t.* 153; *Hook. Gen. Fil. t.* 59 *B; Eng. Bot. t.* 108; *Lindl. and Moore's Brit. Ferns, t.* 51 *B.*—Temperate Zone of the Northern Hemisphere.

2. **O. Lusitanicum,** *Linn.; Hook. et Grev. Ic. Fil. t.* 80; *Lindl. and Moore's Brit. Ferns, t.* 51 *C.*—South of Europe.

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124. BOTRYCHIUM, *Sw.*

Veins free. *Fertile spikes* compound paniculate. *Sporangia* distinct, in two unilateral rows, transversely bivalved.

1. **B. Lunaria,** *Sw.; Schk. Fil. t.* 154; *Hook. Gen. Fil. t.* 47 *A; Lindl. and Moore's Brit. Ferns, t.* 51 *A.* Osmunda Lunaria, *Linn.*—Temperate Zone of the Northern Hemisphere.
2. **B. Virginicum,** *Sw.* B. Virginianum, *Schk. Fil. t.* 156. Osmunda Virginiana, *Linn.* Botrypus Virginicus, *Michx.* —North America.

ERRATA.

Page 16, *for* drepanum *read* drepana.
Page 28, *for* vellum *read* velleum.
Page 36, *for* demidiata *read* dimidiata.
Page 45, *for* **A. furcatum**, *J. Sm.*, *read* **A. bifidum**, *J. Sm.*
Page 55, *for* Perreniana *read* Perriniana.

Corrections made.

INDEX OF GENERA.

Page
Acrostichum, *Linn.* . . . 26
Adiantum, *Linn.* . . . 32
Alsophila, *R. Br.* . . . 73
Anapeltis, *J. Sm.* . . . 5
Anchistea, *Presl* . . . 41
Anemia, *Sw.* 76
Anemidictyon, *J. Sm.* . 76
Angiopteris, *Hoffm.* . 80
Antigramma, *Presl* . . 49
Antrophyum, *Kaulf.* . 22
Arthropteris, *J. Sm.* . 62
Aspidium, *Sw.* 51
Asplenium, *Linn.* . . . 43
Balantium, *Kaulf.* . . . 70
Blechnum, *Linn.* . . . 38
Botrychium, *Sw.* . . . 81
Brainea, *J. Sm.* 41
Callipteris, *Bory* 50
Campyloneuron, *Presl* . 12
Ceratopteris, *Brongn.* . 22
Ceterach, *Willd.* . . . 51
Cheilanthes, *Sw.* 29
Cibotium, *Kaulf.* . . . 71
Cincinalis, *Desv.* 30
Colysis, *Presl* 11
Coniogramme, *Fée* . . . 19
Cryptogramme, *R. Br.* . . 30
Cyathea, *Sm.* 72
Cyclodium, *Presl* . . . 53
Cyclopeltis, *J. Sm.* . . . 61
Cyrtomium, *Presl* . . . 53

Page
Cystopteris, *Bernh.* . . . 55
Davallia, *Sw.* 65
Deparia, *Hook. et Grev.* 67
Dicksonia, *L'Hérit.* . . . 70
Dictymia, *J. Sm.* . . . 6
Dictyoxiphium, *Hook.* . 64
Didymochlæna, *Desv.* . 61
Diplazium, *Sw.* 47
Doodia, *R. Br.* 39
Doryopteris, *J. Sm.* . . . 35
Drymoglossum, *Presl* . 7
Drynaria, *Bory* 13
Elaphoglossum, *Schott* . 25
Eupodium, *J. Sm.* . . . 80
Fadyenia, *Hook.* 53
Gleichenia, *R. Br.* . . . 74
Goniophlebium, *Presl* . 2
Goniopteris, *Presl* . . . 20
Gymnogramme, *Desv.* . 18
Gymnopteris, *Bernh.* . 23
Hemidictyum, *Presl* . 50
Hemionitis, *Linn.* . . . 19
Hemitelia, *R. Br.* . . . 72
Humata, *Cav.* 65
Hymenodium, *Fée* . . . 26
Hymenolepis, *Kaulf.* . 7
Hymenophyllum, *Sw.* . 69
Hypoderris, *R. Br.* . . . 51
Hypolepis, *Bernh.* . . . 17
Lastrea, *Presl* 56
Lepicystis, *J. Sm.* . . . 2

Page
Leptochilus, *Kaulf.* 8
Leptogramme, *J. Sm.* 15
Leucostegia, *Presl* 66
Lindsæa, *Dry.* 64
Litobrochia, *Presl* 36
Lomaria, *Willd.* 39
Lomariopsis, *Fée* 25
Lonchitis, *Linn.* 37
Lopholepis, *J. Sm.* 4
Lophosoria, *Kunze* 73
Lorinsoria, *Presl* 42
Lygodictyon, *J. Sm.* 75
Lygodium, *Sw.* 75
Marattia, *Sm.* 79
Meniscium, *Schreb.* 21
Mesochlæna, *R. Br.* 54
Microlepia, *Presl* 67
Microsorum, *Link* 11
Mohria, *Sw.* 77
Myriopteris, *Fée* 28
Neottopteris, *J. Sm.* 49
Nephrodium, *Schott* 54
Nephrolepis, *Schott* 62
Nevrodium, *Fée* 7
Niphobolus, *Kaulf.* 11
Niphopsis, *J. Sm.* 6
Notholæna, *R. Br.* 28
Odontosoria, *J. Sm.* 66
Oleandra, *Cav.* 63
Olfersia, *Radd.* 24
Onoclea, *Linn.* 52

Page
Onychium, *Kaulf.* 34
Ophioglossum, *Linn.* 80
Osmunda, *Linn.* 77
Pellæa, *Link* 31
Phegopteris, *Fée* 15
Phlebodium, *R. Br.* 4
Phymatodes, *Presl* 8
Platycerium, *Desv.* 27
Platyloma, *J. Sm.* 32
Pleopeltis, *Humb.* 4
Pleuridium, *Fée* 10
Pœcilopteris, *Eschw.* 23
Polybotrya, *Humb.* 24
Polypodium, *J. Sm.* 1
Polystichum, *Roth* 59
Pteris, *Linn.* 35
Schizæa, *Sm.* 77
Schizoloma, *Gaud.* 64
Scolopendrium, *Sm.* 48
Sitolobium, *Desv.* 69
Soromanes, *Fée* 24
Stenochlæna, *J. Sm.* 42
Stenosemia, *Presl* 23
Struthiopteris, *Willd.* 14
Thyrsopteris, *Kunze* 71
Todea, *Willd.* 78
Trichiocarpa, *J. Sm.* 68
Trichomanes, *Linn.* 68
Vittaria, *Sm.* 21
Woodsia, *R. Br.* 55
Woodwardia, *Sw.* 41

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